Public Health England

User Guide: Local Alcohol Profiles for England 2014

About Public Health England

Public Health England's mission is to protect and improve the nation's health and to address inequalities through working with national and local government, the NHS, industry and the voluntary and community sector. PHE is an operationally autonomous executive agency of the Department of Health.

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1.0 Background

This document outlines the methods used by the Knowledge and Intelligence Team (North West),[a] to produce a national alcohol dataset, the Local Alcohol Profiles for England (LAPE), together with a brief guide on how to use the online tool. The metadata and methods for individual indicators are outlined in section 6.

Alcohol use has health and social consequences borne by individuals, their families, and the wider community. In 2006, the former North West Public Health Observatory gathered routine data and intelligence from a range of sources (including the Department of Health and the Home Office), to provide a national indicator set intended to inform and support local, sub-national and national alcohol policies. These indicators provided measures to help prioritise and target local areas of concern.

Local Alcohol Profiles for England have been published on an annual basis since 2006. The latest update, Local Alcohol Profiles for England 2014, was released on 29 April 2014. The profiles contain 26 alcohol-related indicators for every local authority, and the majority are also available for all Public Health England (PHE) centres in England; the data download also provides data for former government office regions (see section 2.3 for more details about geographies). Profiles are available online through the dynamic PDF and with a range of download options through www.lape.org.uk

The Knowledge and Intelligence Team (North West) has reviewed and revised the methods used to derive population measures of alcohol-related harm in order to ensure the approaches used reflect current knowledge and understanding. The profiles continue to reflect the wide range of domains that are affected by alcohol use. There have been a number of methodological changes to the indicators presented in Local Alcohol Profiles for England 2014; a description of these changes and an assessment of their implications are given in section 2.

[a] The Knowledge and Intelligence Team (North West) includes staff from the former North West Public Health Observatory and the Cancer Intelligence Team.

2.0 Key changes to the Local Alcohol Profiles for England 2014

There have been a number of changes to the methodologies used to calculate certain indicators presented in the Local Alcohol Profiles for England 2014. The main changes are summarised here; more detailed descriptions of the methodologies used to create individual indicators are presented, by indicator, in section 6.

A number of methodological changes have occurred since the Local Alcohol Profiles for England 2012 were released. The data presented in the Local Alcohol Profiles for England 2014 should not be compared with data published in previous versions. The Knowledge and Intelligence Team (North West) have recalculated data for previous years in line with recent changes in order to ensure comparisons across years are valid.

2.1 Changes to the alcohol-attributable fractions

Section 3 describes what alcohol-attributable fractions are and how they are derived. In 2014, the alcohol-attributable fractions that are applied to mortality and hospital admission data were updated to take into account new epidemiological evidence for the association between alcohol consumption and health-related outcomes. This exercise resulted in some important changes to the number of health conditions and external causes that are identified as being alcohol-related and also a recalculation of the attributable fractions for some of the existing health measures. For more information about this update see Jones et al. (2014).[1] For more information on the previous alcohol-attributable fractions see Jones et al. (2008).[2] The updated alcohol-attributable fractions are presented in Appendix 1.

2.2 Changes to the alcohol-related hospital admission and admission episodes for alcohol-related conditions indicators

In 2013, following a stakeholder consultation, PHE announced that the current indicator for admission episodes for alcohol-related conditions (previously National Indicator 39) would be supplemented by a new indicator. The Local Alcohol Profiles for England 2014 includes both the old (broad) indicator and the new (narrow) indicator. Further information about this change and the difference between the broad and narrow indicators is detailed in an online blog, available at: publichealthmatters.blog.gov.uk/2014/01/15/understanding-alcohol-related-hospital-admissions

In line with this change, the Local Alcohol Profiles for England 2014 also includes both broad and narrow measures for alcohol-related hospital admission. For further details on alcohol-attributable fractions see section 3. For further details on the methodology used to calculate alcohol-related admission and admission episodes for alcohol-related episodes see section 6.2.

2.3 Geographical changes

On the 27 March 2012, the Health and Social Care Act was passed; this Act created a new geographical structure through which PHE will operate. The new structure consists of four regions and 15 centres (Figure 1). For more information about the new structure see the PHE Transition Team factsheet (2012).[3] The Local Alcohol Profiles for England 2014 present data by local authority. For indicators which have been updated this year because new data are available, the local authority values in the profiles are compared to the relevant PHE centre. For indicators which have not been updated this year, the local authority values in the profiles are compared to the relevant former government office region. On the excel spreadsheets, each local authority is compared to the national average. For the Local Alcohol Profiles for England 2014, the data download also provides data for the former government office region geographies (Figure 2).

Figure 1. Current geographical structure of England: regions and centres

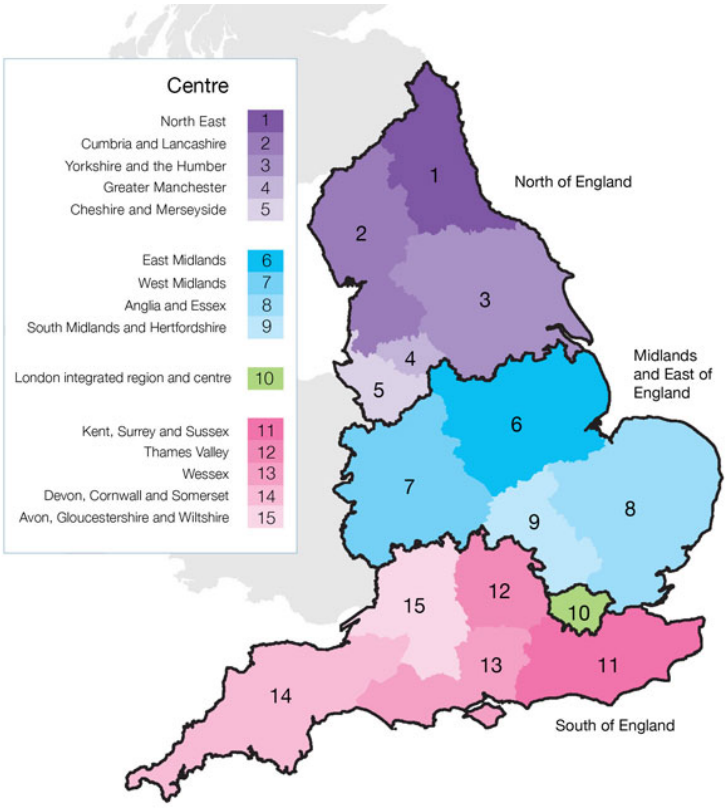


Figure 2. Former geographical structure of England: government office regions

2.4 Changes to the European standard population

Comparing crude rates across populations can be misleading if the age structures of the populations differ. Age standardisation is an important method which is used to account for the differences in the age structure of different populations in order to ensure that comparisons are valid.[4] The Local Alcohol Profiles for England use the European standard population for this purpose. The European standard population is effectively a hypothetical population structure which is used to weight data in order to produce directly age standardised rates. In 2009 a decision was made to revise the European standard population in recognition that the population of Europe is ageing.[4] This methodological change will cause age standardised mortality/hospital admission rates to increase, in most cases, because the new European standardised population is weighted towards older ages, and most deaths/hospital admissions occur at older ages. Consequently, the age standardised rates calculated using the new European standard population would differ from the age standardised rates calculated using the old European standard population, without there being any underlying change in the overall number of deaths/hospital admissions. For more information about these changes and their implications see guidance from the Office for National Statistics: www.ons.gov.uk/ons/guide-method/user-guidance/health-and-

life-events/revised-european-standard-population-2013--2013-esp-/index.html
Indicators that have been updated by the Knowledge and Intelligence Team (North West) for the Local Alcohol Profiles for England 2014 use the new European standard population. Trend data have been updated using the new European standard population.

2.5 Changes to the recording of mortality data

There have been changes to the manner in which the text about causes of death on death certificates are translated by the Office for National Statistics into International Classification of Diseases codes[b]. These changes mean that unrevised data are not comparable across years. The main change relates to the rules that govern which cause of death detailed on the death certificate is selected as the underlying cause. In general, the impact of these changes can be quantified and the data can be adjusted through the use of 'comparability ratios' which are used to adjust the number of deaths and to calculate adjusted mortality rates. Comparability ratios have been used in all the mortality indicators included in the Local Alcohol Profiles for England 2014 in order to ensure that indicators across years within this refresh are comparable; comparability ratios have been applied to mortality data for years up to and including 2010. For more details on compatibility ratios see PHE guidance, available at: www.apho.org.uk/resource/item.aspx?RID=126646

2.6 Changes to the denominator populations (2011 census)

The Local Alcohol Profiles for England 2014 present data generated using 2011 census-based populations. All trend data for earlier years have been recalculated using revised population estimates based on the 2011 census. Rates for trend data in the Local Alcohol Profiles for England 2014 will not match those in Local Alcohol Profiles for England 2012 for the same time periods. For more details on the 2011 census see 2011 Census Guidance and Methodology, available at: www.ons.gov.uk/ons/guide-method/census/2011/index.html

2.7 Changes to the employees in bars indicator

The Business Register and Employment Survey (BRES) data, which are used to construct the Employees in Bars indicator, underwent changes in 2011 in relation to 'working owners'. The changes aimed to ensure that all limited companies (excluding limited liability partnerships) correctly filled out the survey. For example, research conducted by the Office for National Statistics revealed that directors of limited companies classified themselves in the survey as 'working proprietors' despite the guidance from Her Majesty's Revenues and Customs stating they should be

[b] Further information is available from www.who.int/classifications/icd/en/

considered ‘employees’ of the company. As a result of the changes some directors previously classified as ‘working owners’ will now be classified as ‘employees’; this increased the BRES estimate of employees and caused a discontinuity in the 2011 and 2010 surveys.

In their ‘Working owners discontinuity in the Business Register and Employment Survey (BRES)’ briefing (available at www.ons.gov.uk/ons/guide-method/method-quality/specific/labour-market/business-register-and-employment-survey--bres-/bres-working-owners-discontinuity-article.pdf) the Office for National Statistics note that counting directors of limited companies as ‘employees’ rather than ‘working owners’ should not affect employment estimates because employment is the sum of ‘employees’ plus ‘working owners’. However, further research by the Office for National Statistics into this issue also discovered cases of double counting (as some directors of limited companies included themselves in both categories when completing the questionnaire). The Office for National Statistics has since estimated the degree of double counting and discontinuity between 2010 and 2011 results and released revised 2010 data on Nomis www.nomisweb.co.uk.

For consistency, the Knowledge and Intelligence Team (North West) has produced the current indicator using the same approach as last year. The changes described here increase the likelihood that the BRES data are measuring what they say they are. There should also be fewer instances of double counting within the latest figures. However, this also means that the indicator presented in this data refresh (which uses 2012 data) is not directly comparable to data presented in previous Local Alcohol Profiles for England. However, the Office for National Statistics found that the broad industry groups most affected were the professional, scientific and technical, construction and property groups (the Office for National Statistics UK Standard Industrial Classification of Economic Activities 2007, SIC 2007 www.hse.gov.uk/statistics/industry/sic2007.htm) and it is of note that as the numerator data used in the Local Alcohol Profiles for England (‘beverage serving activities’) is part of the ‘accommodation and food services’ group, it is arguably one of the categories least affected by any changes.

2.8 Changes to the alcohol-related crime indicators

The Office for National Statistics has redesigned the classifications used to present police recorded crime statistics. These changes have been made to improve the understanding of crime statistics and to align police recorded crime with other crime datasets (such as the British Crime Survey, now the Crime Survey for England and Wales).[c] As a result of these changes, data are no longer available in the seven ‘key

[c] Further information is available at: www.ons.gov.uk/ons/guide-method/method-quality/specific/crime-statistics-methodology/user-guide-to-crime-statistics.pdf

offence' crime groupings formerly released by the Home Office and used to produce the alcohol-related recorded crime indicators for which attributable fractions are available (Table 1). For example, these changes require that crimes be classified in terms of whether they have a victim or not and as such selected offences are now transferred into different groups to better reflect the nature of the offences. For example 'possession of weapon' and 'public fear, alarm or distress' have now moved out of the 'violence against person - without injury' category to the sub categories of 'possessions of weapons' and 'public order offences.' Similarly homicide is now a separate category in its own right rather than being included in the 'violence with injury' category. 'Exploitation of prostitution' and 'soliciting for the purposes of prostitution offences' previously included under 'sexual offences' are also now moved into a separate offence category of 'miscellaneous crimes against society'.

All recorded crime data currently available from Office for National Statistics and for previous years has now been amended to reflect these changes. The Office for National Statistics publishes data split into 21 offence sub groups (with raw data available for individual offences within these broader categories). Therefore, for the purposes of consistency with previous versions of the Local Alcohol Profiles for England, the Knowledge and Intelligence Team (North West) has produced the current alcohol-related recorded crime indicator using updated crime data but based on the same crime groupings as last year (where possible). For more information about where these changes apply see the crime indicators detailed in section 6.3.

3.0 Alcohol-attributable fractions

3.1 Alcohol-attributable fractions used to calculate alcohol-related mortality and hospital admissions

Attributable fraction values, or population attributable fractions, are the proportion of a health condition or external cause that is attributable to the exposure of a specific risk factor (such as alcohol) in a given population. Local Alcohol Profiles for England use attributable fractions to estimate the number of deaths and hospital admissions that are related to alcohol consumption. Attributable fractions may be estimated directly, for example, by assigning specific attributable fractions to external causes of morbidity and mortality. Alternatively, indirectly estimated attributable fractions can be derived from the relative risk associated with the exposure of interest, in combination with information about the prevalence of the exposure in the target population. The population attributable fraction calculation assumes a causal association between risk factor and outcome, meaning that the attributable fraction can also be viewed as the expected proportional reduction in cases of an outcome arising in the population as a result of removing the exposure, in this case alcohol.

Appendix 1 shows the attributable fractions used to estimate the number of alcohol-related deaths and hospital admissions reported in Local Alcohol Profiles for England 2014. These alcohol-attributable fractions were updated in 2014 and are taken from Jones et al. (2014).[1] Sex and age specific alcohol-attributable fractions reflect the difference in exposure, prevalence and physiological differences between males and females and between age groups. The table includes outcomes with a negative attributable fraction where low levels of alcohol consumption were found to have a protective effect, such as diabetes mellitus type II (Appendix 1). Outcomes where alcohol has a protective effect are not included when the alcohol-attributable fractions are applied to mortality and hospital episode statistics data.

3.2 Alcohol-specific conditions

Alcohol-specific conditions include those conditions where alcohol is causally implicated in all cases of the condition; for example, alcohol-induced behavioural disorders and alcohol-related liver cirrhosis. The alcohol-attributable fraction is 1.0 because all cases (100%) are caused by alcohol.

3.3 Alcohol-related conditions

Alcohol-related conditions include all alcohol-specific conditions, plus those where alcohol is causally implicated in some but not all cases of the outcome, for example

hypertensive diseases, various cancers and falls. The attributable fractions for alcohol-related outcomes used here range from between 0 and less than 1.0. For example, the alcohol-attributable fraction for mortality from pneumonia among men aged 75 and over is 0.10 because the latest epidemiological data suggest that 10% of pneumonia cases among this population are due to alcohol. Outcomes where alcohol has a protective effect (i.e. the fraction is less than 0) are not included when the alcohol-attributable fractions are applied to mortality and hospital episode statistics data.

An alcohol-attributable fraction is the proportion of a condition caused by alcohol.

An alcohol-attributable fraction of 1.0 = 100% of cases are caused by alcohol.

An alcohol-attributable fraction of 0.25 = 25% of cases are caused by alcohol.

3.4 Alcohol-attributable fractions for children

Alcohol-attributable fractions for children (aged under 16 years) are included for alcohol-specific diagnoses (where the alcohol-attributable fraction is 1.0) and for low birth weight (where the alcohol-attributable fraction is 0.05, Appendix 1). For other conditions, alcohol-attributable fractions were not available for children.

3.5 Alcohol-attributable fractions used to calculate alcohol-related crime

Local Alcohol Profiles for England indicators use attributable fractions to estimate the number of crimes that are related to alcohol consumption. Alcohol-attributable fractions from the former UK Prime Ministers Strategy Unit were used in the production of the alcohol-related crime indicators (Table 1). These alcohol-attributable fractions estimate the statistical association between measures of alcohol and crime, and not necessarily the causal association, and should therefore be distinguished from the disease specific alcohol-attributable fractions used for the hospital admission and mortality indicators.

Table 1. Alcohol-attributable fractions for crime

Crime category	Alcohol-attributable fraction
Violence against the person	0.37
Sexual offences	0.13
Robbery	0.12
Burglary	0.17
Theft of motor vehicle	0.13
Theft from a motor vehicle	0.13

4.0 Confidence intervals

The majority of estimates presented within the Local Alcohol Profiles for England are accompanied by confidence intervals. The following definition of a confidence interval is taken from the following briefing: Commonly Used Public Health Statistics and their Confidence Intervals,[5] available at: www.apho.org.uk/resource/item.aspx?RID=48457

A confidence interval is a range of values that is normally used to describe the uncertainty around a point estimate of a quantity. This uncertainty arises as factors influencing the indicator are subject to chance occurrences that are inherent in the world around us. These occurrences result in random fluctuations in the indicator value between different areas and time periods. In the case of indicators based on a sample of the population, uncertainty also arises from random differences between the sample and the population itself. The stated value should therefore be considered as only an estimate of the true or 'underlying' value. Confidence intervals quantify the uncertainty in this estimate and, generally speaking, describe how different the point estimate could have been if the underlying conditions stayed the same, but chance had led to a different set of data. Wider confidence intervals equate to greater uncertainty in the estimate. Confidence intervals are given with a stated probability level. In Local Alcohol Profiles for England this is 95%, and so we say that there is a 95% probability that the interval includes the true value. The use of 95% is arbitrary but is conventional practice in medicine and public health.

The confidence intervals have also been used to make comparisons against the national value in the local area summary charts (for an example screen shot, see section 5.3). Statistical testing is undertaken by comparing the confidence intervals of the estimates to see if they overlap – non-overlapping confidence intervals are considered as statistically significantly different and the value is shown on the summary chart with a red or green circle depending on whether it is worse or better than the national value respectively.

5.0 Local Alcohol Profiles for England online tool

In this section we explain how to:

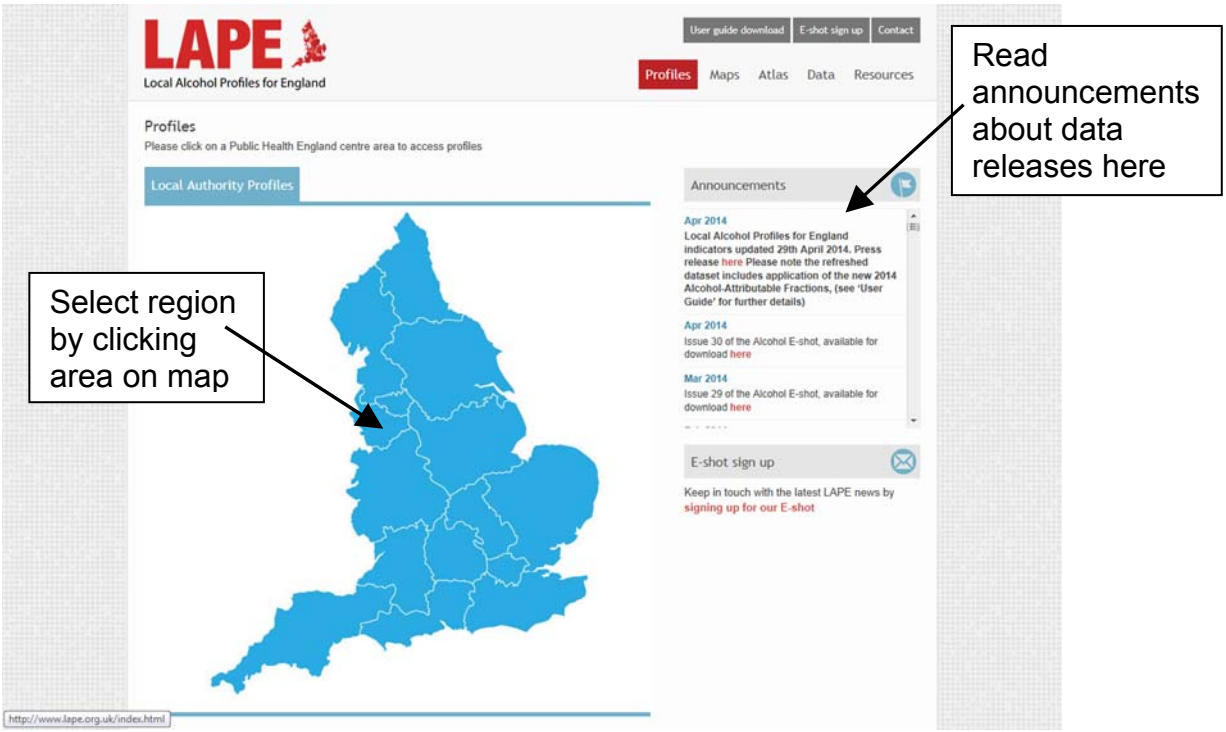
- Access the tool
- Select a profile from the launch page
- View local area profile charts and data
- Download data
- Access associated reports and maps
- Use the InstantAtlas functions

5.1 Accessing the Local Alcohol Profiles for England tool

The tool is available online at www.lape.org.uk

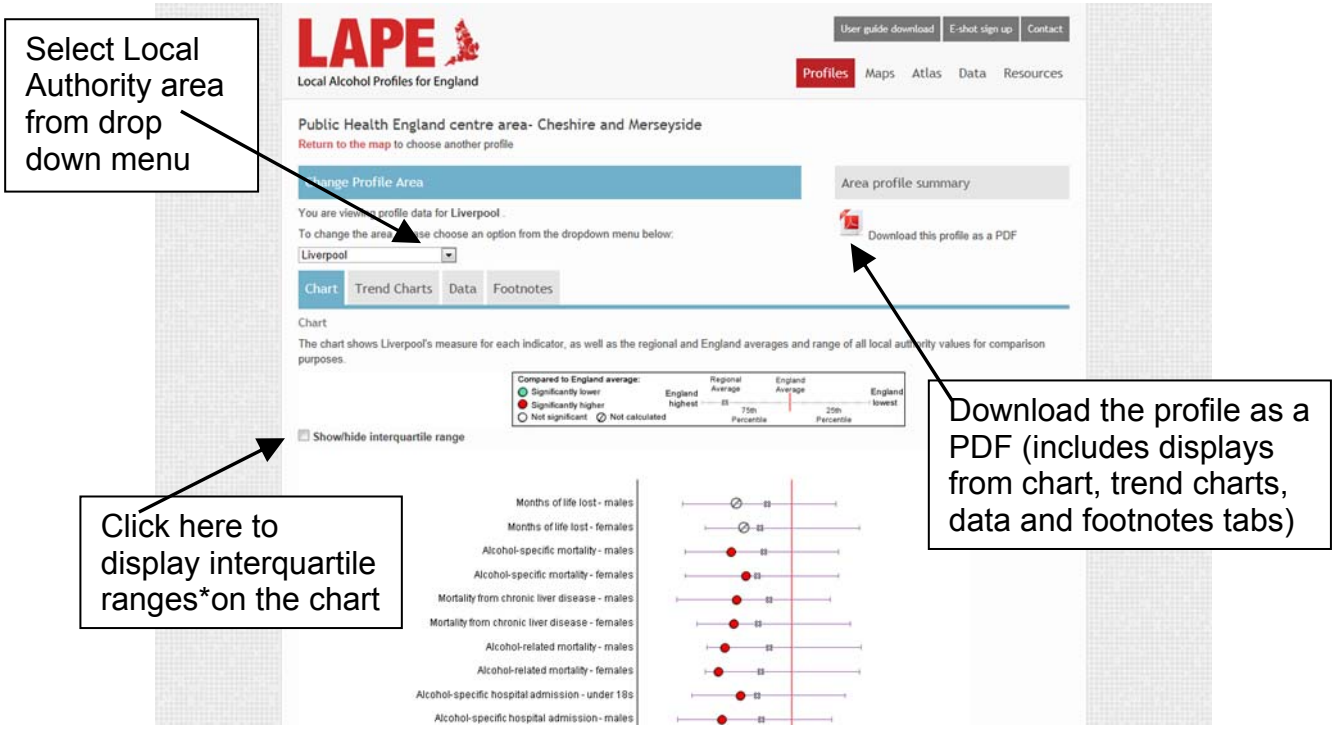
5.2 Selecting a profile from the launch page

The ‘Profiles’ tab allows you to select profiles for each local authority.



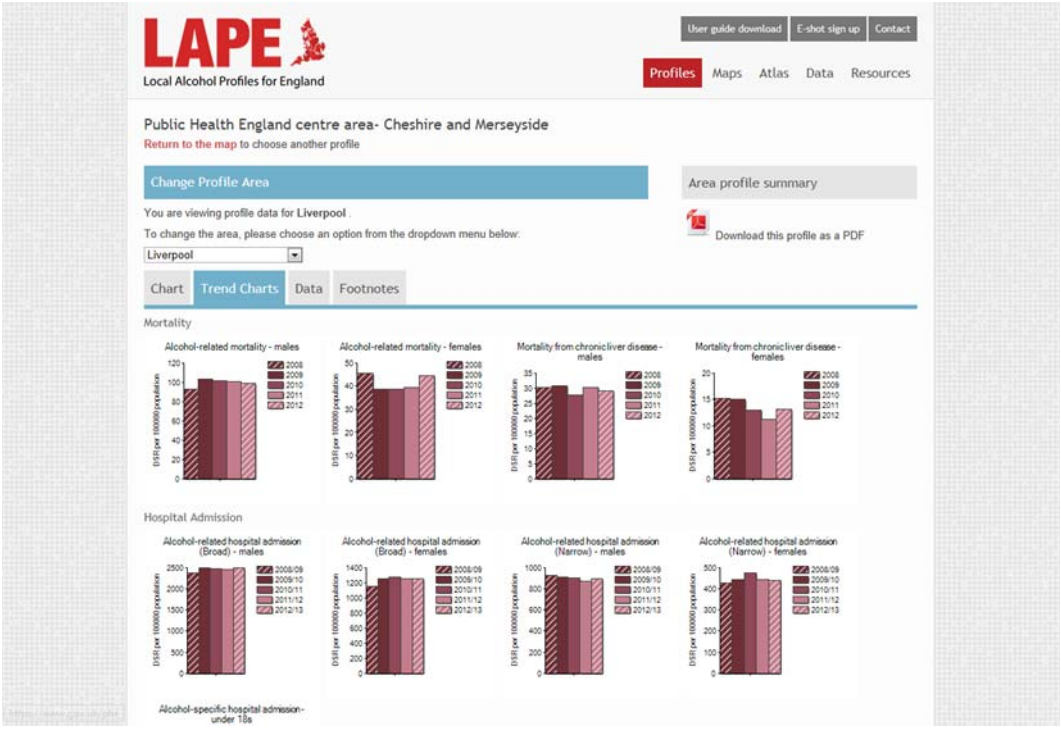
5.3 Viewing local area profile charts and data

The ‘Chart’ tab shows the local results for each indicator as a circle against the national average. Data for the relevant PHE centre are also described on the local authority profiles (or former government office region for indicators which have not been updated this year).



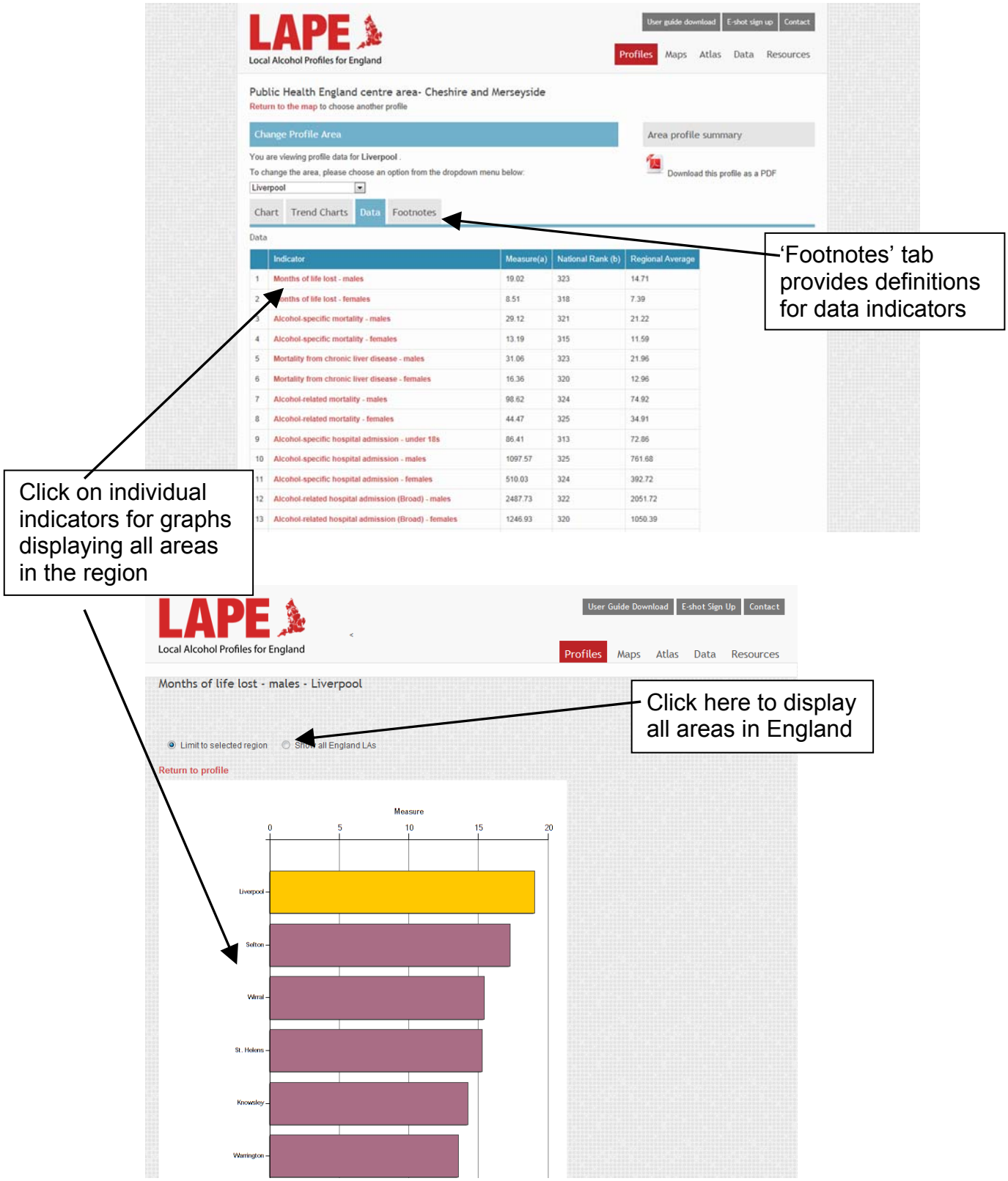
* The interquartile range is the distance between the 75th percentile and the 25th percentile.

The ‘Trend charts’ tab displays local trends over five time periods for 12 selected indicators.



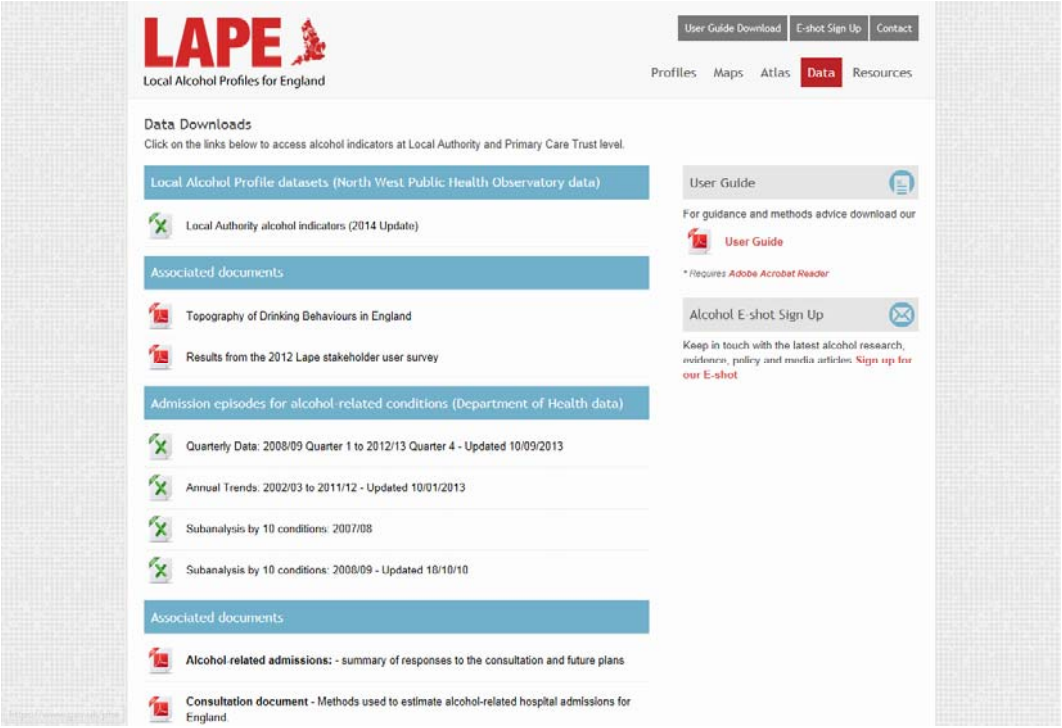
The ‘Data’ tab displays the local values (the ‘measure’), national rank and PHE centre (or former government office region for indicators which have not been updated this year) average for all indicators.

The ‘Footnotes’ tab provides definitions of data indicators.



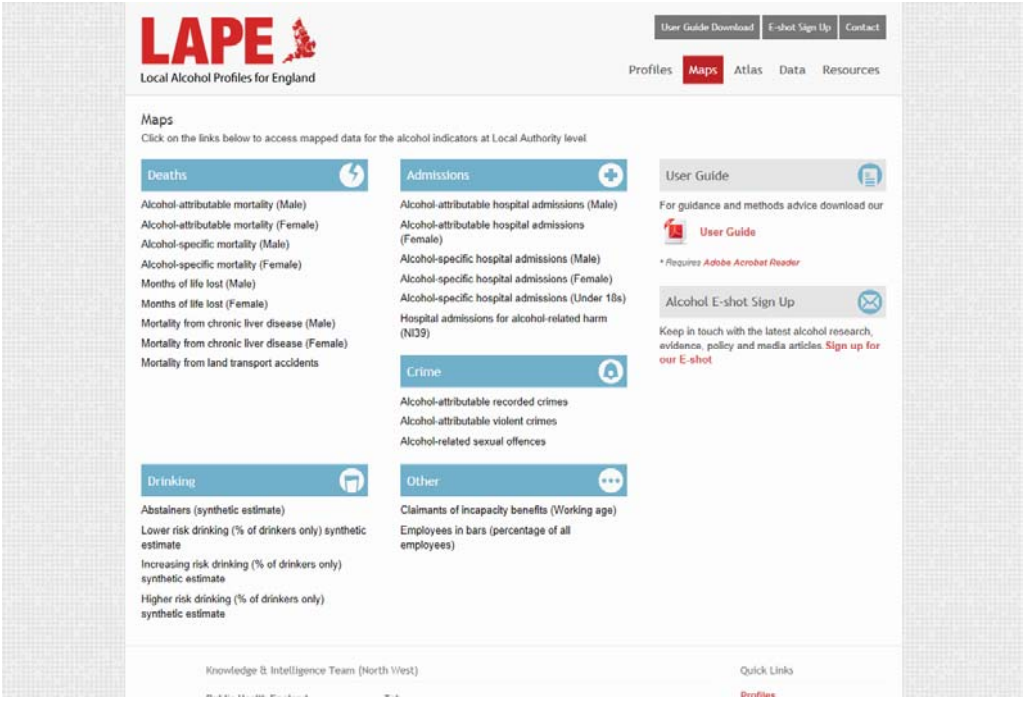
5.4 Downloading data

Data, including trend data for some indicators, can be downloaded using the ‘Data’ tab. Data are available for local authorities, PHE centres and for England. For the 2014 profiles, the data download also provides data for former government office regions.



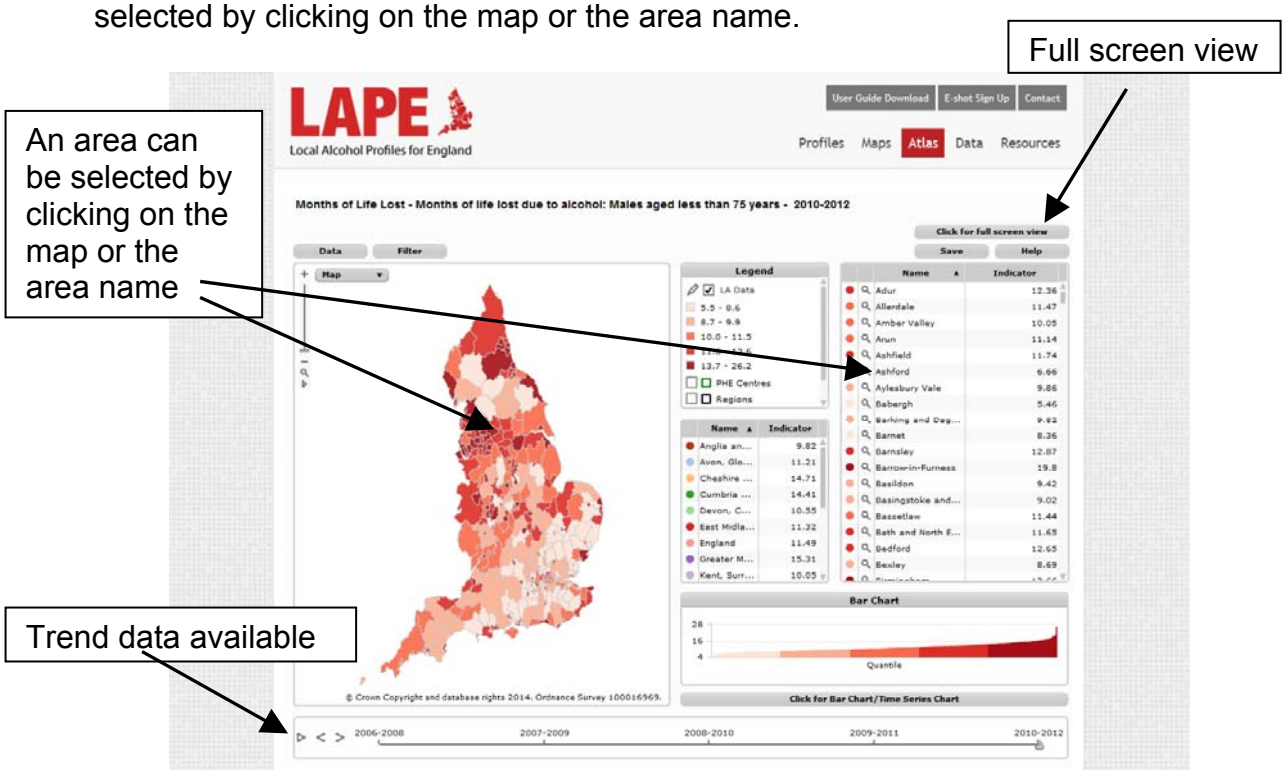
5.5 Associated reports and maps

The ‘Maps’ tab allows access to mapped data for the alcohol indicators by local authority.



5.6 Using the InstantAtlas functions

The ‘Atlas’ tab allows you to select profiles for each local authority. An area can be selected by clicking on the map or the area name.



6.0 Indicator overview and metadata

This section provides an overview and metadata for the 26 indicators below:

No.	Indicator Name (click link below)
1	Months of life lost - males
2	Months of life lost - females
3	Alcohol-specific mortality - males
4	Alcohol-specific mortality - females
5	Mortality from chronic liver disease - males
6	Mortality from chronic liver disease - females
7	Alcohol-related mortality - males
8	Alcohol-related mortality - females
9	Alcohol-specific hospital admission - under 18s
10	Alcohol-specific hospital admission - males
11	Alcohol-specific hospital admission - females
12	Alcohol-related hospital admission (broad) - males
13	Alcohol-related hospital admission (broad) - females
14	Alcohol-related hospital admission (narrow) - males
15	Alcohol-related hospital admission (narrow) - females
16	Admission episodes for alcohol-related conditions (broad)
17	Admission episodes for alcohol-related conditions (narrow)
18	Alcohol-related recorded crimes
19	Alcohol-related violent crimes
20	Alcohol-related sexual offences
21	Abstainers synthetic estimate
22	Lower Risk drinking (% of drinkers only) synthetic estimate
23	Increasing Risk drinking (% of drinkers only) synthetic estimate
24	Higher Risk drinking (% of drinkers only) synthetic estimate
25	Binge drinking (synthetic estimate)
26	Employees in bars - % of all employees

6.1 Mortality and months of life lost due to alcohol

1. Months of life lost due to alcohol – males
2. Months of life lost due to alcohol – females
3. Alcohol-specific mortality – males
4. Alcohol-specific mortality – females
5. Mortality from chronic liver disease – males
6. Mortality from chronic liver disease – females
7. Alcohol-related mortality – males
8. Alcohol-related mortality – females

Mortality data for the months of life lost due to alcohol, alcohol-specific and alcohol-related mortality indicators were extracted from the Office for National Statistics annual deaths extract by the Knowledge and Intelligence Team (North West) using the underlying cause of death corresponding to the International Classification of Diseases (version 10) codes in Appendix 1. The corresponding mid-year population estimates were obtained from the Office for National Statistics. Alcohol-specific and alcohol-related deaths were assigned the alcohol-attributable fractions described in Appendix 1.

Months of life lost due to alcohol is based on three consecutive years of mortality data. Alcohol-specific mortality is based on three consecutive years of mortality data and is a directly age-standardised rate. Mortality from chronic liver disease is based on three years of mortality data and is a directly age-standardised rate. Finally, alcohol-related mortality is based on one year of mortality data and is a directly age-standardised rate.

Indicator details: months of life lost due to alcohol (males and females)

IDs	1 and 2.
Indicator name	Months of life lost due to alcohol – males and females.
What is being measured	An estimate of the increase in life expectancy at birth which would be expected if all alcohol-related deaths among males/females aged less than 75 years were prevented.
Who does it measure	Males and females aged less than 75 years.
When does it measure	Calendar years 2010-2012 (three year moving average). Trends are available for years 2006-2008, 2007-2009, 2008-2010 and 2009-2011.
Indicator definition	Months of life lost due to alcohol, males and females aged less than 75 years.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). The Office for National Statistics provides Knowledge and Intelligence Teams with the annual extract and mid-year population estimates around July-September. The Office for National Statistics produces annual interim life tables around October.
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) and PHE centres. The data download also provides data for former government office regions.
Numerator definition	Deaths from alcohol-related conditions (Appendix 1) based on underlying cause of death, registered in the calendar years 2010-2012 for males and females aged less than 75 years. Children aged less than 16 years were only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions, alcohol-attributable fractions were not available for children.
Numerator source	Annual death extracts from the Office for National Statistics.
Denominator definition	Mid-year population estimates (2010, 2011 and 2012) for 0-74 year olds (age bands: <1, 1-44, 45-54, 55-64 and 65-74 years), males and females. Estimates are aggregated from single year age bands. The three

	years of data are pooled.
Denominator source	The Office for National Statistics.
Confidence interval methodology	Confidence intervals have not been generated for this indicator.
Caveats	Mortality data are considered to be complete and robust. Records without a valid area code are excluded (the number of these is negligible). There is the potential for the underlying cause of death to be incorrectly attributed on the death certificate and the cause of death misclassified. Children aged less than 16 years were only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions, alcohol-attributable fractions were not available for children. Conditions where low levels of alcohol consumption are protective (have a negative alcohol-attributable fraction) are not included in the calculation of the indicator.
Method used to create this indicator	1. Select deaths under 75. 2. Assemble three consecutive years of data for locality deaths in England. 3. Assemble corresponding three consecutive years of locality mid-year population estimates (age bands: <1, 1-44, 45-54, 55-64 and 65-74 years). 4. Reduce each observed death by the corresponding alcohol-attributable fraction based on underlying cause of death. 5. Attach national (England and Wales three year aggregates) years of life lost values to each fractional observed death from Office for National Statistics interim life tables (www.ons.gov.uk/ons/rel/lifetables/interim-life-tables/2010-2012/index.html): deaths in first year counted as life expectancy at birth deaths in years one to four counted as life expectancy at age two deaths in years five to nine counted as life expectancy at age seven, and so on….. ….deaths at 70-74 counted as life expectancy at 72 6. Sum attributable years of life lost in age groups <1, 1-44, 45-54, 55-64, 65-74 by sex and locality.

	7. Calculate local, regional and England three year attributable years of life lost rates per 10,000 population by age group and sex. 8. Standardise to the European standard population in age groups. 9. This gives the average years of life lost for each year lived in an area. 10. Multiply by 12 (to convert to months), and by life expectancy at birth (to project lifetime effect). This methodology was developed by Tom Hennell, Knowledge and Intelligence Team (North West). Comparability ratios were used in the calculation of trend data (see section 2.5 for more details).
Summary footnote	An estimate of the increase in life expectancy at birth that would be expected if all alcohol-related deaths among males/females aged less than 75 years were prevented. Knowledge and Intelligence Team (North West) from 2010-2012 England and Wales life expectancy tables for males and females (from Office for National Statistics), alcohol-related deaths from the Public Health Mortality File 2010-2012 for males/females aged less than 75 years and the Office for National Statistics mid-year population estimates for 2010-2012.

Indicator details: alcohol-specific mortality (males and females)

IDs	3 and 4.
Indicator name	Alcohol-specific mortality – males and females.
What is being measured	Mortality from alcohol-specific conditions.
Who does it measure	Males and females all ages.
When does it measure	Calendar years 2010-2012 (three year moving average). Trends are available for years 2006-2008, 2007-2009, 2008-2010, and 2009-2011.
Indicator definition	Mortality from alcohol-specific conditions, directly age-standardised rate, males and females, all ages, per 100,000 European standard population.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). The Office for National Statistics provides Knowledge and Intelligence Teams with the annual extract and mid-year population estimates around July-September.
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) and PHE centres. The data download also provides data for former government office regions.
Numerator definition	Deaths from alcohol-specific conditions (Appendix 1) based on underlying cause of death, registered in the calendar years 2010-2012 for males and females of all ages.
Numerator source	Annual death extracts from the Office for National Statistics.
Denominator definition	Mid-year population estimates (2010, 2011 and 2012), by five year age bands, males and females.
Denominator source	The Office for National Statistics.
Confidence interval methodology	Byar's methodology was used to generate 95% confidence intervals, as detailed in APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals.[5] The formula numbers below correspond to those in the briefing available from:

www.apho.org.uk/resource/item.aspx?RID=48457
An accompanying Excel spreadsheet, replicating all formulae, is also available from this website.
The confidence limits for the directly age-standardised rate are given by:

$$DSR_{lower} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{lower} - O)$$

$$DSR_{upper} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{upper} - O)$$

here:
O is the total observed count of events in the local or subject population.
O_{lower} and O_{upper} are the lower and upper confidence limits for the observed count of events.
Var(O) is the variance of the total observed count *O*.
DSR is the directly age-standardised rate.
Var(DSR) is the variance of the directly age-standardised rate.

Using Byar's method, the 100(1–α)% confidence limits for the observed number of events are given by:

$$O_{lower} = O \times \left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$$

$$O_{upper} = (O+1) \times \left(1 - \frac{1}{9(O+1)} + \frac{z}{3\sqrt{(O+1)}}\right)^3$$

where:
z is the 100(1–α/2)th percentile value from the standard normal distribution. For example, for a 95% confidence interval, α = 0.05 and *z* = 1.96 (i.e. the 97.5th percentile value from the standard normal distribution).
The variances of the observed count *O* and the *DSR* are estimated by:

$$Var(O) = \sum_i O_i$$

$$Var(DSR) = \frac{1}{\left(\sum_i w_i\right)^2} \times \sum_i \frac{w_i^2 O_i}{n_i^2}$$

where:
O_i is the observed number of events in the local or subject population in age group *i*.
n_i is the number of individuals in the local or subject denominator population in age group *i*, or the

	population × period at risk (e.g. 'person-years'). w_i is the number (or proportion) of individuals in the reference or standard population in age group *i*. The Excel formulae available at www.apho.org.uk/resource/item.aspx?RID=48617 were used to calculate confidence intervals. The spreadsheet uses Excel's built-in functions for exact probabilities for all cases based on numerators under 389, in order to give the most accurate results. For higher numerators, Excel's statistical functions fail (intermittently), and while macros are available to calculate exact Poisson probabilities, it is simpler to use Byar's method, and extremely accurate to do so.[5]
Caveats	Mortality data are considered to be complete and robust. Records without a valid area code are excluded (the number of these is negligible). There is the potential for the underlying cause of death to be incorrectly attributed on the death certificate and the cause of death misclassified.
Method used to create this indicator	The directly age-standardised rate is the rate of events that would occur in a population with a standard age structure if that population were to experience the age-specific rates of the subject population. The standard population used is the European standard population. The age groups used are 0-4, 5-9, …., 85-90, 90+years. The rate for 2010-2012 has been calculated as the simple average of the individual annual rates. The rate is expressed per 100,000 population. Comparability ratios were used in the calculation of trend data (see section 2.5 of this report for more details).
Summary footnote	Deaths from alcohol-specific conditions, all ages, males/females, directly age-standardised rate per 100,000 population (standardised to the European standard population). Knowledge and Intelligence Team (North West) from the Public Health Mortality File for 2010-2012 and Office for National Statistics mid-year population estimates for 2010-2012.

Indicator details: mortality from chronic liver disease (males and females)

IDs	5 and 6.
Indicator name	Mortality from chronic liver disease – males and females.
What is being measured	Mortality rate form chronic liver disease.
Who does it measure	Males and females all ages.
When does it measure	Calendar years 2010-2012 (three year moving average). Trends are available for years 2006-2008, 2007-2009, 2008-2010, and 2009-2011.
Indicator definition	Mortality from chronic liver disease, directly age-standardised rate males and females, all ages, per 100,000 European standard population.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). The Office for National Statistics provides Knowledge and Intelligence Teams with the annual extract and mid-year population estimates around July-September.
Geographical coverage	England and 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts). The data download also provides data for former government office regions.
Numerator definition	Deaths from chronic liver disease, including cirrhosis, classified by underlying cause of death (International Classification of Disease, version 10: K70, K73-K74), registered in the calendar years 2010-2012 for males and females of all ages.
Numerator source	Annual death extracts from the Office for National Statistics.
Denominator definition	Mid-year population estimates (2010, 2011 and 2012), by five year age bands, males and females.
Denominator source	The Office for National Statistics.
Confidence interval methodology	Byar's methodology was used to generate 95% confidence intervals, as detailed in APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals.[5] The formula numbers below correspond to those in the briefing available

from:
www.apho.org.uk/resource/item.aspx?RID=48457
An accompanying Excel spreadsheet, replicating all formulae, is also available from this website.
The confidence limits for the directly age-standardised rate are given by:

$$DSR_{lower} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{lower} - O)$$

$$DSR_{upper} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{upper} - O)$$

here:
O is the total observed count of events in the local or subject population.
O_{lower} and O_{upper} are the lower and upper confidence limits for the observed count of events.
Var(O) is the variance of the total observed count *O*.
DSR is the directly age-standardised rate.
Var(DSR) is the variance of the directly age-standardised rate.

Using Byar's method, the 100(1–α)% confidence limits for the observed number of events are given by:

$$O_{lower} = O \times \left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$$

$$O_{upper} = (O+1) \times \left(1 - \frac{1}{9(O+1)} + \frac{z}{3\sqrt{(O+1)}}\right)^3$$

where:
z is the 100(1–α/2)th percentile value from the standard normal distribution. For example, for a 95% confidence interval, α = 0.05 and *z* = 1.96 (i.e. the 97.5th percentile value from the standard normal distribution).
The variances of the observed count *O* and the *DSR* are estimated by:

$$Var(O) = \sum_i O_i$$

$$Var(DSR) = \frac{1}{\left(\sum_i w_i\right)^2} \times \sum_i \frac{w_i^2 O_i}{n_i^2}$$

where:
O_i is the observed number of events in the local or subject population in age group *i*.
n_i is the number of individuals in the local or subject

	denominator population in age group *i*, or the population × period at risk (e.g. 'person-years'). w_i is the number (or proportion) of individuals in the reference or standard population in age group *i*. The Excel formulae available at www.apho.org.uk/resource/item.aspx?RID=48617 were used to calculate confidence intervals. The spreadsheet uses Excel's built-in functions for exact probabilities for all cases based on numerators under 389, in order to give the most accurate results. For higher numerators, Excel's statistical functions fail (intermittently), and while macros are available to calculate exact Poisson probabilities, it is simpler to use Byar's method, and extremely accurate to do so.[5]
Caveats	Mortality data are considered to be complete and robust. Records without a valid area code are excluded (the number of these is negligible). There is the potential for the underlying cause of death to be incorrectly attributed on the death certificate and the cause of death misclassified.
Method used to create this indicator	The directly age-standardised rate is the rate of events that would occur in a population with a standard age structure if that population were to experience the age-specific rates of the subject population. The standard population used is the European standard population. The age groups used are 0-4, 5-9, …., 85-90, 90+years. The rate for 2010-2012 has been calculated as the simple average of the individual annual rates. The rate is expressed per 100,000 population. Comparability ratios were used in the calculation of trend data (see section 2.5 of this report for more details).
Summary footnote	Deaths from chronic liver disease including cirrhosis (International Classification of Diseases, version 10: K70, K73-K74), all ages, males/females, directly age-standardised rate per 100,000 population (standardised to the European standard population). Knowledge and Intelligence Team (North West) from the Public Health Mortality File for 2010-2012 and Office for National Statistics mid-year population estimates for 2010-2012.

Indicator details: alcohol-related mortality (males and females)

IDs	7 and 8.
Indicator name	Alcohol-related mortality – males and females.
What is being measured	Mortality from alcohol-related conditions.
Who does it measure	Males and females all ages.
When does it measure	Calendar year 2012. Trends are available for 2008, 2009, 2010 and 2011.
Indicator definition	Mortality from alcohol-related conditions, directly age-standardised rate, males and females, all ages, per 100,000 European standard population.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). The Office for National Statistics provides Knowledge and Intelligence Teams with the annual extract and mid-year population estimates around July-September.
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) and PHE centres. The data download also provides data for former government office regions.
Numerator definition	Deaths from alcohol-related conditions (Appendix 1) based on underlying cause of death, registered in the calendar year 2012 for males and females of all ages. Children aged less than 16 years were only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions, alcohol-attributable fractions were not available for children.
Numerator source	Annual death extracts from the Office for National Statistics.
Denominator definition	Mid-year population estimates (2012), by five year age bands, males and females.
Denominator source	The Office for National Statistics.
Confidence interval methodology	Byar's methodology was used to generate 95% confidence intervals, as detailed in APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals.[5] The formula numbers

below correspond to those in the briefing available from:
www.apho.org.uk/resource/item.aspx?RID=48457
An accompanying Excel spreadsheet, replicating all formulae, is also available from this website.
The confidence limits for the directly age-standardised rate are given by:

$$DSR_{lower} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{lower} - O)$$

$$DSR_{upper} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{upper} - O)$$

where:
O is the total observed count of events in the local or subject population.
O_{lower} and O_{upper} are the lower and upper confidence limits for the observed count of events.
Var(O) is the variance of the total observed count *O*.
DSR is the directly age-standardised rate.
Var(DSR) is the variance of the directly age-standardised rate.

Using Byar's method, the 100(1–α)% confidence limits for the observed number of events are given by:

$$O_{lower} = O \times \left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$$

$$O_{upper} = (O+1) \times \left(1 - \frac{1}{9(O+1)} + \frac{z}{3\sqrt{(O+1)}}\right)^3$$

where:
z is the 100(1–α/2)th percentile value from the Standard Normal distribution. For example, for a 95% confidence interval, α = 0.05 and *z* = 1.96 (i.e. the 97.5th percentile value from the Standard Normal distribution).
The variances of the observed count *O* and the *DSR* are estimated by:

$$Var(O) = \sum_i O_i$$

$$Var(DSR) = \frac{1}{\left(\sum_i w_i\right)^2} \times \sum_i \frac{w_i^2 O_i}{n_i^2}$$

where:
O_i is the observed number of events in the local or subject population in age group *i*.
n_i is the number of individuals in the local or subject

	denominator population in age group *i*, or the population × period at risk (e.g. 'person-years'). w_i is the number (or proportion) of individuals in the reference or standard population in age group *i*. The Excel formulae available at www.apho.org.uk/resource/item.aspx?RID=48617 were used to calculate confidence intervals. The spreadsheet uses Excel's built-in functions for exact probabilities for all cases based on numerators under 389, in order to give the most accurate results. For higher numerators, Excel's statistical functions fail (intermittently), and while macros are available to calculate exact Poisson probabilities, it is simpler to use Byar's method, and extremely accurate to do so.[5]
Caveats	Mortality data are considered to be complete and robust. Records without a valid area code are excluded (the number of these is negligible). There is the potential for the underlying cause of death to be incorrectly attributed on the death certificate and the cause of death misclassified. Children aged less than 16 years were only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions, alcohol-attributable fractions were not available for children. Conditions where low levels of alcohol consumption are protective (have a negative alcohol-attributable fraction) are not included in the calculation of the indicator.
Method used to create this indicator	Each alcohol-related death is assigned an alcohol-attributable fraction (Appendix 1) based on underlying cause of death. The alcohol-attributable fractions are then aggregated by age group (0-4, 5-8, …., 85-90, 90+), sex and area of residence. Mid-year population estimates are used to calculate directly age-standardised rates. The directly age-standardised rate is the rate of events that would occur in a population with a standard age structure if that population were to experience the age-specific rates of the subject population. The standard population used is the European standard population. The age groups used are 0-4, 5-9, …., 85-90, 90+years. The rate is expressed per 100,000 population. Comparability ratios were used in the calculation of trend data (see section 2.5 for more details).

Summary footnote	Deaths from alcohol-related conditions, all ages, males/females, directly age-standardised rate per 100,000 population (standardised to the European standard population). Knowledge and Intelligence Team (North West) from the Office for National Statistics Public Health Mortality File for 2012 and mid-year population estimates for 2012.

6.2 Number of people and number of admissions to hospital for alcohol-related conditions

9.	Alcohol-specific hospital admission – under 18 year olds
10.	Alcohol-specific hospital admission – males
11.	Alcohol-specific hospital admission – females
12 and 14.	Alcohol-related hospital admission (broad and narrow measures) – males
13 and 15.	Alcohol-related hospital admission (broad and narrow measures) – females
16 and 17.	Admission episodes for alcohol-related conditions[d] (broad and narrow measures)

To calculate the broad indicators of alcohol-related hospital admissions, the list of International Classification of Diseases (version 10) codes (Appendix 1) is used to extract all episodes containing alcohol-related diagnoses from the hospital episode statistics datasets. Sex and age specific alcohol-attributable fractions are then applied to each episode.
Within the Local Alcohol Profiles for England, the Knowledge and Intelligence Team (North West) calculates the number of men and women admitted to hospital each year for alcohol-specific and alcohol-related conditions. The analysis carried out by Knowledge and Intelligence Team (North West) is person based, yielding a period prevalence estimate of the number of persons admitted to hospital at least once during the course of a (financial) year.

Rules to allocate individuals to a single International Classification of Diseases (version 10) code for person-based analysis (broad indicator).
For each individual:

1. Identify all alcohol-attributable diagnosis codes from their hospital episode statistics records.
2. Select the code(s) with the largest attributable fraction.
3. In the event of there being two or more episodes with the same high attributable fraction, select the one from the earliest episode (using start date).
4. In the event of there being two or more diagnoses with the same high attributable fraction, within the same episode, select the one from the lowest diagnostic position.

To calculate the narrow indicator of alcohol-related hospital admissions, the following are extracted: episodes where the primary code is an alcohol-related condition listed in Appendix 1 or episodes where the primary code is not an alcohol-related condition but one of the secondary codes is an external cause with an

[d] Previously National Indicator 39 (NI39).

alcohol-attributable fraction listed in Appendix 1. For more information on this new narrow indicator, and how it differs from the old broad indicator, see section 2.2. As with the broad indicator of alcohol-related hospital admissions, rules are produced in order to avoid double counting of people and these are described below.

Rules to allocate individuals to a single International Classification of Diseases (version 10) code for person-based analysis (narrow indicator).
For each individual:

1. Identify all alcohol-attributable diagnosis codes from their hospital episode statistics records.
2. Select the code(s) for which the primary diagnosis code is an alcohol-attributable diagnosis code or an alcohol-attributable external cause code appears in one of the secondary codes.
3. Select the code(s) with the largest attributable fraction.
4. In the event of there being two or more episodes with the same high attributable fraction, select the one from the earliest episode (using start date).

Person-specific admissions were originally adopted by the former North West Public Health Observatory (now the Knowledge and Intelligence Team [North West]) Local Alcohol Profiles for England tool as one measure of the number of individuals being adversely affected by alcohol. However, an additional indicator (admission episodes for alcohol-related conditions[e]) was subsequently developed as a measure of pressures from alcohol on health systems. For this indicator, the alcohol-attributable fractions are applied in order to estimate the number of admissions rather than the number of people.

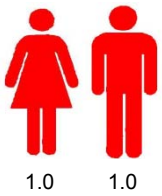
Indicators 9 to 15 relate to the number of **people** admitted to hospital each year per 100,000 population for alcohol-specific and alcohol-related conditions.

In contrast, indicators 16 and 17 relate to the number of **admission episodes** to hospital for alcohol-related conditions for every 100,000 population.

Individuals may be admitted more than once in any year. A person is counted only once in indicators 9 to 15 but may contribute more than one admission episode to indicators 16 and 17.

The total alcohol-related admission episodes for an area are the sum of episode-specific data. An illustration of this summation is given below.

[e] Previously National Indicator 39 (NI39).



The alcohol-attributable fraction for accidental poisoning by and exposure to alcohol is 1.0 (Appendix 1). Summing two people admitted for ethanol poisoning will give a total of 2.0 alcohol-related admission episodes.

The alcohol-attributable fraction for colorectal cancer for 16 to 24 year olds is 0.16 for males and 0.11 for females (Appendix 1). Summing five males and five females aged 16 to 24 years admitted for colorectal cancer will give a total of 1.35 alcohol-related admission episodes.

Indicator details: alcohol-specific hospital admission – under 18 year olds

ID	9.
Indicator name	Alcohol-specific hospital admission – under 18 year olds
What is being measured	Individual persons aged less than 18 years admitted to hospital due to alcohol-specific conditions.
Who does it measure	Persons aged less than 18 years.
When does it measure	Three financial years 2010/11 to 2012/13 (pooled). Trends are available for years 2006/07 to 2008/09, 2007/08 to 2009/10, 2008/09 to 2010/11 and 2009/10 to 2011/12.
Indicator definition	Persons admitted to hospital due to alcohol-specific conditions – under 18 year olds, crude rate per 100,000 population.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). Hospital episode statistics publish annual extracts around August of each year. The Office for National Statistics publishes mid-year population estimates around July-September.
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) and PHE centres. The data download also provides data for former government office regions.
Numerator definition	Persons aged less than 18 years admitted to hospital where the primary diagnosis or any of the secondary diagnoses are an alcohol-specific code (Appendix 1), for years 2010/11 to 2012/13.
Numerator source	The Health and Social Care Information Centre (HSCIC).
Denominator definition	Mid-year population estimates (2010, 2011 and 2012) for 0-17 year olds.
Denominator source	The Office for National Statistics.
Confidence interval methodology	Byar's methodology was used to generate 95% confidence intervals, as detailed in *APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals*. The formula numbers below correspond to those in the briefing available

	from: www.apho.org.uk/resource/item.aspx?RID=48457 An accompanying Excel spreadsheet, replicating all formulae, is also available from the link above. The rate of events *r* is given by: $$r = \frac{O}{n}$$ where: *O* is the numerator number of observed events. *n* is the denominator population-years at risk. The confidence limits for the rate *r* are given by: $r_{lower} = \frac{O_{lower}}{n}$ $r_{upper} = \frac{O_{upper}}{n}$ where: O_{lower} and O_{upper} are the lower and upper confidence limits for the observed count of events. Using Byar's method, the 100(1–α)% confidence limits for the observed number of events are given by: $$O_{lower} = O \times \left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$$ where: $$O_{upper} = (O+1) \times \left(1 - \frac{1}{9(O+1)} + \frac{z}{3\sqrt{(O+1)}}\right)^3$$ *z* is the 100(1–α/2)th percentile value from the standard normal distribution. For example, for a 95% confidence interval, α = 0.05 and *z* = 1.96 (i.e. the 97.5th percentile value from the standard normal distribution). The Excel formulae available at www.apho.org.uk/resource/item.aspx?RID=48617 were used to calculate confidence intervals. The spreadsheet uses Excel's built-in functions for exact probabilities for all cases based on numerators under 389, in order to give the most accurate results. For higher numerators, Excel's statistical functions fail (intermittently), and while macros are available to calculate exact Poisson probabilities, it is simpler to use Byar's method, and extremely accurate to do so.[5]
Caveats	Hospital admission data can be coded differently in different parts of the country. In some cases, details of

	the patient's residence are insufficient to allocate the patient to a particular area and in other cases the patient has no fixed abode. These cases are included in the England total but not in the local authority or PHE centre figures.
Method used to create this indicator	Alcohol-specific hospital admission for people aged less than 18 years are calculated as follows (text in square brackets refers to terms in hospital episode statistics dataset fields): Select hospital episode statistics records where: the admission is a finished episode [epistat = 3] the admission is an ordinary admission, day case or maternity [*classpat* = 1, 2 or 5] the sex of the patient is valid [sex = 1 or 2] there is a valid age, under 18, at start of episode [*startage* between 0-17 or between 7001-7007] the region of residence is one of the English regions [*resgor*<= K or U or Y] the episode end date [epiend] falls within the specified period an alcohol-specific International Classification of Diseases (version 10) code (Appendix 1) appears in any diagnosis field [*diag_nn*] Select a single diagnosis to create a person-based indicator by: identifying all alcohol-specific diagnosis codes for each individual [using *hospital episode statistics identification code*] within each financial year in the event of there being two or more episodes with an alcohol-specific diagnosis, select the one from the earliest episode using start date [*epistart*] in the event of there being two or more alcohol-specific diagnoses within the same episode, select the one from the lowest diagnostic position [*diag_nn*]. ('Diagnostic position', takes an integer value between 1 and 20, corresponding to the 20 diagnosis fields [*diag_01* to *diag_20*]) Calculate crude rates by: aggregating alcohol-specific admissions above by area of residence aggregating under 18 year olds mid-year population estimates for each area Crude rates per 100,000 were calculated using the

	following formula: $(a/b) \times 100{,}000$ where: *a* is the number of alcohol-specific person-based admissions for under 18 year olds. *b* is the Office for National Statistic's population estimates for under 18 year olds.
Summary footnote	Persons admitted to hospital due to alcohol-specific conditions, under 18 year olds, crude rate per 100,000 population. Knowledge and Intelligence Team (North West) from hospital episode statistics 2010/11 to 2012/13. Office for National Statistics mid-year population estimates 2010, 2011 and 2012. Does not include attendance at Accident and Emergency departments.

Indicator details: alcohol-specific hospital admission (males and females)

IDs	10 and 11.
Indicator name	Alcohol-specific hospital admission – males and females.
What is being measured	Individual persons admitted to hospital due to alcohol-specific conditions.
Who does it measure	Males and females all ages.
When does it measure	Financial year 2012/13. Trends are available for years 2008/09, 2009/10, 2010/11 and 2011/12.
Indicator definition	Persons admitted to hospital due to alcohol-specific conditions – males and females, all ages, directly age-standardised rate per 100,000 population European standard population.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). Hospital episode statistics publish annual extracts around August of each year. The Office for National Statistics publishes mid-year population estimates around July-September.
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) and PHE centres. The data download also provides data for former government office regions.
Numerator definition	Persons admitted to hospital where the primary diagnosis or any of the secondary diagnoses are an alcohol-specific code (Appendix 1), males/females for the financial year 2012/13.
Numerator source	The Health and Social Care Information Centre (HSCIC).
Denominator definition	Mid-year population estimates (2012), by five year age bands, males and females.
Denominator source	The Office for National Statistics.
Confidence interval methodology	Byar's methodology was used to generate 95% confidence intervals, as detailed in APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals.[5] The formula numbers below correspond to those in the briefing available from:

www.apho.org.uk/resource/item.aspx?RID=48457
An accompanying Excel spreadsheet, replicating all formulae, is also available from this website. The confidence limits for the directly age-standardised rate are given by:

$$DSR_{lower} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{lower} - O)$$

$$DSR_{upper} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{upper} - O)$$

where:
O is the total observed count of events in the local or subject population.
O_{lower} and O_{upper} are the lower and upper confidence limits for the observed count of events.
Var(O) is the variance of the total observed count *O*.
DSR is the directly age-standardised rate.
Var(DSR) is the variance of the directly age-standardised rate.

Using Byar's method, the 100(1–α)% confidence limits for the observed number of events are given by:

$$O_{lower} = O \times \left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$$

$$O_{upper} = (O+1) \times \left(1 - \frac{1}{9(O+1)} + \frac{z}{3\sqrt{(O+1)}}\right)^3$$

where:
z is the 100(1–α/2)th percentile value from the Standard Normal distribution. For example, for a 95% confidence interval, α = 0.05 and *z* = 1.96 (i.e. the 97.5th percentile value from the Standard Normal distribution).

The variances of the observed count *O* and the *DSR* are estimated by:

$$Var(O) = \sum_i O_i$$

$$Var(DSR) = \frac{1}{\left(\sum_i w_i\right)^2} \times \sum_i \frac{w_i^2 O_i}{n_i^2}$$

where:
O_i is the observed number of events in the local or subject population in age group *i*.
n_i is the number of individuals in the local or subject

	denominator population in age group *i*, or the population × period at risk (e.g. 'person-years'). w_i is the number (or proportion) of individuals in the reference or standard population in age group *i*. The Excel formulae available at www.apho.org.uk/resource/item.aspx?RID=48617 were used to calculate confidence intervals. The spreadsheet uses Excel's built-in functions for exact probabilities for all cases based on numerators under 389, in order to give the most accurate results. For higher numerators, Excel's statistical functions fail (intermittently), and while macros are available to calculate exact Poisson probabilities, it is simpler to use Byar's method, and extremely accurate to do so.[5]
Caveats	Hospital admission data can be coded differently in different parts of the country. In some cases, details of the patient's residence are insufficient to allocate the patient to a particular area and in other cases the patient has no fixed abode. These cases are included in the England total but not in the local authority or PHE centre figures.
Method used to create this indicator	Male, female alcohol-specific hospital admission are calculated as follows: Select hospital episode statistics records where: the admission is a finished episode [*epistat* = 3] the admission is an ordinary admission, day case or maternity [*classpat* = 1, 2 or 5] the sex of the patient is valid [sex = 1 or 2] there is a valid age at start of episode [*startage* between 0-120 or between 7001-7007] the region of residence is one of the English regions, no fixed abode or unknown [*resgor*<= K or U or Y] the episode end date [*epiend*] falls within the specified period an alcohol-specific International Classification of Diseases (version 10) code (Appendix 1) appears in any diagnosis field [*diag_nn*] Select a single diagnosis to create a person-based indicator by: identifying all alcohol-specific diagnosis codes for each individual [using *hospital episode statistics Identification code*] within the financial year

	in the event of there being two or more episodes with an alcohol-specific diagnosis, select the one from the earliest episode using start date [*epistart*] in the event of there being two or more alcohol-specific diagnoses, within the same episode, select the one from the lowest diagnostic position [*diag_nn*]. ('Diagnostic position', takes an integer value between 1 and 20, corresponding to the 20 diagnosis fields [*diag_01* to *diag_20*]) Calculate directly age-standardised rate by: aggregating alcohol-specific admissions above by age group (5-year age bands to age 89, and 90 years and over), sex and area of residence using mid-year population estimates to derive age group and sex-specific rates for each area. calculating directly age-standardised rate per 100,000 population, standardised to the European standard population
Summary footnote	Persons admitted to hospital due to alcohol-specific conditions, all ages, males/females, directly age-standardised rate per 100,000 population (standardised to the European standard population). Knowledge and Intelligence Team (North West) from hospital episode statistics 2012/13. Office for National Statistics mid-year population estimates 2012. Does not include attendance at Accident and Emergency departments.

Indicator details: alcohol-related hospital admissions, broad and narrow measures (males and females)

IDs	12, 13, 14 and 15.
Indicator name	Alcohol-related hospital admission – males and females (broad and narrow measures).
What is being measured	Individual (in year) persons admitted to hospital due to alcohol-related conditions.
Who does it measure	Males and females all ages.
When does it measure	Financial year 2012/13. Trends are available for years 2008/09, 2009/10, 2010/11 and 2011/12.
Indicator definition	Persons admitted to hospital due to alcohol-related conditions – males and females, all ages, directly age-standardised rate per 100,000 population European standard population.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). Hospital episode statistics publish annual extracts around August of each year. The Office for National Statistics publishes mid-year population estimates around July-September.
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) and PHE centres. The data download also provides data for government office regions.
Numerator definition	Broad measure: Persons admitted to hospital where the primary diagnosis or any of the secondary diagnoses are an alcohol-attributable code (Appendix 1), males/females for the year 2012/13. Children aged less than 16 years were only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions, alcohol-attributable fractions were not available for children. Narrow measure: Persons admitted to hospital where the primary diagnosis is an alcohol-attributable code (Appendix 1) or one of the secondary codes is an external alcohol-attributable code (Appendix 1), males/females for the year 2012/13. Children aged less than 16 years were

	only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions, alcohol-attributable fractions were not available for children. For a more information on the broad and narrow measures see section 2.2.
Numerator source	The Health and Social Care Information Centre (HSCIC).
Denominator definition	Mid-year population estimates (2012), by five year age bands, males and females.
Denominator source	The Office for National Statistics.
Confidence interval methodology	Byar's methodology was used to generate 95% confidence intervals, as detailed in APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals.[5] The formula numbers below correspond to those in the briefing available from: www.apho.org.uk/resource/item.aspx?RID=48457 An accompanying Excel spreadsheet, replicating all formulae, is also available from this website. The confidence limits for the directly age-standardised rate are given by: $DSR_{lower} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{lower} - O)$ $DSR_{upper} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{upper} - O)$ where: *O* is the total observed count of events in the local or subject population. O_{lower} and O_{upper} are the lower and upper confidence limits for the observed count of events. *Var(O)* is the variance of the total observed count *O*. *DSR* is the directly age-standardised rate. *Var(DSR)* is the variance of the directly age-standardised rate. Using Byar's method, the 100(1–α)% confidence limits for the observed number of events are given by: $O_{lower} = O \times \left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$ $O_{upper} = (O+1) \times \left(1 - \frac{1}{9(O+1)} + \frac{z}{3\sqrt{(O+1)}}\right)^3$

	where: *z* is the 100(1–α/2)th percentile value from the Standard Normal distribution. For example, for a 95% confidence interval, α = 0.05 and *z* = 1.96 (i.e. the 97.5th percentile value from the Standard Normal distribution). The variances of the observed count *O* and the *DSR* are estimated by: $$Var(O) = \sum_i O_i$$ $$Var(DSR) = \frac{1}{\left(\sum_i w_i\right)^2} \times \sum_i \frac{w_i^2 O_i}{n_i^2}$$ where: O_i is the observed number of events in the local or subject population in age group *i*. n_i is the number of individuals in the local or subject denominator population in age group *i*, or the population × period at risk (e.g. 'person-years'). w_i is the number (or proportion) of individuals in the reference or standard population in age group *i*. The Excel formulae available at www.apho.org.uk/resource/item.aspx?RID=48457 were used to calculate confidence intervals. The spreadsheet uses Excel's built-in functions for exact probabilities for all cases based on numerators under 389, in order to give the most accurate results. For higher numerators, Excel's statistical functions fail (intermittently), and while macros are available to calculate exact Poisson probabilities, it is simpler to use Byar's method, and extremely accurate to do so.[5]
Caveats	Hospital admission data can be coded differently in different parts of the country. In some cases, details of the patient's residence are insufficient to allocate the patient to a particular area and in other cases the patient has no fixed abode. These cases are included in the England total but not in the local authority or PHE centre figures. Children aged less than 16 years were only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions,

	alcohol-attributable fractions were not available for children. Conditions where low levels of alcohol consumption are protective (have a negative alcohol-attributable fraction) are not included in the calculation of the indicator.
Method used to create this indicator	Broad measure: Male, female alcohol-related hospital admission are calculated as follows: Select hospital episode statistics records where: the admission is a finished episode [*epistat* = 3] the admission is an ordinary admission, day case or maternity [*classpat* = 1, 2 or 5] the sex of the patient is valid [*sex* = 1 or 2] there is a valid age at start of episode [*startage* between 0-120 or between 7001-7007] the region of residence is one of the English regions, no fixed abode or unknown [*resgor*<= K or U or Y] the episode end date [*epiend*] falls within the financial year an alcohol-related International Classification of Diseases (version 10) code (Appendix 1) appears in any diagnosis field [*diag_nn*] For each episode identified in step 1 above attach the appropriate alcohol-attributable fraction to the alcohol-attributable diagnoses using the International Classification of Diseases (version 10) code, age group and sex of the patient (Appendix 1). 3. Select a single diagnosis to create a person-based indicator by: identifying all alcohol-attributable diagnosis codes for each individual [using *hospital episode statistics Identification code*] within the financial year select the code(s) with the largest attributable fraction in the event of there being two or more episodes with the same high alcohol-attributable fraction, select the one from the earliest episode using start date [*epistart*]) in the event of there being two or more diagnoses with the same high alcohol-attributable fraction, within the same episode, select the one from the lowest diagnostic position [*diag_nn*]. ('Diagnostic position', takes an integer value between 1 and 20, corresponding to the 20 diagnosis fields [*diag_01* to

	diag_20]) 4. Calculate directly age-standardised rate by: aggregating alcohol-related admissions above by age group (5-year age bands to age 89, and 90 years and over), sex and area of residence using mid-year population estimates to derive age group and sex-specific rates for each area calculating directly age-standardised rate per 100,000 population, standardised to the European standard population <u>Narrow measure:</u> Male, female alcohol-related hospital admission are calculated as follows: Select hospital episode statistics records where: the admission is a finished episode [*epistat* = 3] the admission is an ordinary admission, day case or maternity [*classpat* = 1, 2 or 5] the sex of the patient is valid [*sex* = 1 or 2] there is a valid age at start of episode [*startage* between 0-120 or between 7001-7007] the region of residence is one of the English regions, no fixed abode or unknown [*resgor*<= K or U or Y] the episode end date [*epiend*] falls within the financial year an alcohol-attributable International Classification of Diseases (version 10) code (Appendix 1) appears in the primary diagnosis field [*diag_01*] or an alcohol-related external cause code (Appendix 1) appears in one of the secondary codes [*diag_02 to diag_20*] For each episode identified in step 1 above attach the appropriate alcohol-attributable fraction to the alcohol-attributable diagnoses using the International Classification of Diseases (version 10) code, age group and sex of the patient (Appendix 1). 3. Select a single diagnosis to create a person-based indicator by: identifying all alcohol-attributable diagnosis codes for each individual [using *hospital episode statistics Identification code*] within the financial year select the code(s) with the largest attributable fraction in the event of there being two or more episodes with the same high alcohol-attributable fraction, select the one from the earliest episode using start date

	[*epistart*]) in the event of there being two or more diagnoses with the same high alcohol-attributable fraction, within the same episode, select the one from the lowest diagnostic position [*diag_nn*]. ('Diagnostic position', takes an integer value between 1 and 20, corresponding to the 20 diagnosis fields [*diag_01* to *diag_20*]) 4. Calculate directly age-standardised rate by: aggregating alcohol-related admissions above by age group (5-year age bands to age 89, and 90 years and over), sex and area of residence using mid-year population estimates to derive age group and sex-specific rates for each area calculating directly age-standardised rate per 100,000 population, standardised to the European standard population.
Summary footnote	Persons admitted to hospital due to alcohol-related conditions (broad measure [primary diagnosis or any secondary diagnosis] and narrow measure [primary diagnosis or any secondary diagnosis with an external cause]), all ages, males/females, directly age-standardised rate per 100,000 population (standardised to the European standard population). Knowledge and Intelligence Team (North West) from hospital episode statistics 2012/13. Office for National Statistics mid-year population estimates 2012. Does not include attendance at Accident and Emergency departments.

Indicator details: admission episodes for alcohol-related conditions, broad and narrow measures

IDs	16 and 17
Indicator name	Admission episodes for alcohol-related conditions.
What is being measured	Admission episodes for alcohol-related conditions.
Who does it measure	All admissions all ages.
When does it measure	Financial year 2012/13. Trends are available for years 2008/09, 2009/10, 2010/11 and 2011/12.
Indicator definition	Hospital admissions for alcohol- related conditions, directly age-standardised rate per 100,000 population European standard population.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). Hospital episode statistics publish annual extracts around August of each year. The Office for National Statistics publishes mid-year population estimates around July-September.
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) and PHE centres. The data download also provides data for government office regions.
Numerator definition	Broad measure: Admissions to hospital where the primary diagnosis or any of the secondary diagnoses are an alcohol-attributable code (Appendix 1), for the year 2012/13. Children aged less than 16 years were only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions, alcohol-attributable fractions were not available for children. Narrow measure: Admissions to hospital where the primary diagnosis is an alcohol-attributable code (Appendix 1) or a secondary diagnosis is an alcohol-attributable external cause code (Appendix 1), for the year 2012/13 Children aged less than 16 years were only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions, alcohol-attributable

	fractions were not available for children. For a more information on the broad and narrow measures see section 2.2.
Numerator source	The Health and Social Care Information Centre (HSCIC).
Denominator definition	Mid-year population estimates (2012), by five year age bands, all persons.
Denominator source	The Office for National Statistics.
Confidence interval methodology	Byar's methodology was used to generate 95% confidence intervals, as detailed in APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals.[5] The formula numbers below correspond to those in the briefing available from: www.apho.org.uk/resource/item.aspx?RID=48457 An accompanying Excel spreadsheet, replicating all formulae, is also available from this website. The confidence limits for the directly age-standardised rate are given by: $$DSR_{lower} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{lower} - O)$$ $$DSR_{upper} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{upper} - O)$$ where: *O* is the total observed count of events in the local or subject population. O_{lower} and O_{upper} are the lower and upper confidence limits for the observed count of events. *Var(O)* is the variance of the total observed count *O*. *DSR* is the directly age-standardised rate. *Var(DSR)* is the variance of the directly age-standardised rate. Using Byar's method, the 100(1–α)% confidence limits for the observed number of events are given by: $$O_{lower} = O \times \left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$$ $$O_{upper} = (O+1) \times \left(1 - \frac{1}{9(O+1)} + \frac{z}{3\sqrt{(O+1)}}\right)^3$$ where: *z* is the 100(1–α/2)th percentile value from the

	Standard Normal distribution. For example, for a 95% confidence interval, α = 0.05 and z = 1.96 (i.e. the 97.5th percentile value from the Standard Normal distribution). The variances of the observed count *O* and the *DSR* are estimated by: $$Var(O) = \sum_i O_i$$ $$Var(DSR) = \frac{1^i}{\left(\sum_i w_i\right)^2} \times \sum_i \frac{w_i^2 O_i}{n_i^2}$$ where: O_i is the observed number of events in the local or subject population in age group *i*. n_i is the number of individuals in the local or subject denominator population in age group *i*, or the population × period at risk (e.g. 'person-years'). w_i is the number (or proportion) of individuals in the reference or standard population in age group *i*. The Excel formulae available at www.apho.org.uk/resource/item.aspx?RID=48617 were used to calculate confidence intervals. The spreadsheet uses Excel's built-in functions for exact probabilities for all cases based on numerators under 389, in order to give the most accurate results. For higher numerators, Excel's statistical functions fail (intermittently), and while macros are available to calculate exact Poisson probabilities, it is simpler to use Byar's method, and extremely accurate to do so.[5]
Caveats	Hospital admission data can be coded differently in different parts of the country. In some cases, details of the patient's residence are insufficient to allocate the patient to a particular area and in other cases the patient has no fixed abode. These cases are included in the England total but not in the local authority or PHE centre figures. Children aged less than 16 years were only included for alcohol-specific conditions and for low birth weight (Appendix 1). For other conditions, alcohol-attributable fractions were not available for children. Conditions where low levels of alcohol consumption are protective (have a negative alcohol-attributable fraction) are not included in the calculation of the indicator.

Method used to create this indicator	Alcohol-related hospital admission is calculated as follows: <u>Broad measure:</u> 1. Select hospital episode statistics records where: the admission is a finished episode [*epistat* = 3] the admission is an ordinary admission, day case or maternity [*classpat* = 1, 2 or 5] it is an admission episode [*epiorder* = 1] the sex of the patient is valid [*sex* = 1 or 2] there is a valid age at start of episode [*startage* between 0-120 or between 7001-7007] the region of residence is one of the English regions, no fixed abode or unknown [*resgor*<= K or U or Y] the episode end date [epiend] falls within the financial year an alcohol-attributable International Classification of Diseases (version 10) code (Appendix 1) appears in any diagnosis field [*diag_nn*] 2. For each episode identified in step 1 above, an alcohol-attributable fraction is applied based on the diagnostic codes, age group and sex of the patient (Appendix 1). Where there is more than one alcohol-attributable International Classification of Diseases (version 10) code among the 20 possible diagnostic codes (from *diag_nn*) the code(s) with the largest alcohol-attributable fraction is selected. In the event of there being two or more codes with the same alcohol-attributable fraction within the same episode, select the one from the lowest diagnostic position [*diag_nn*]. ('Diagnostic position', takes an integer value between 1 and 20, corresponding to the 20 diagnosis fields [*diag_01* to *diag_20*]). 3. Calculate directly standardised rates by: aggregating alcohol-related admissions above by 5 year age groups (0-4, 5-9 to 85-89 and 90 years and over), for each area of residence using mid-year population estimates to derive age group and sex-specific rates for each area calculating directly age-standardised rate per 100,000 population, standardised to the European standard population The directly age-standardised rate is the rate of

	events that would occur in a standard population if that population were to experience the age/sex-specific rates of the subject population. Explicitly: $$DSR = \frac{\sum_i w_i r_i}{\sum_i w_i} \times 100{,}000$$ (expressed per 100,000 population) where: w_i is the number, or proportion, of individuals in the standard population in age/sex group i. r_i is the crude age/sex-specific rate in the subject population in age/sex group i, given by: $r_i = \frac{O_i}{n_i}$ where: O_i is the observed number of events in the subject population in age/sex group i. n_i is the number of individuals in the subject population in age/sex group i. <u>Narrow measure:</u> 1. Select hospital episode statistics records where: the admission is a finished episode [*epistat* = 3] the admission is an ordinary admission, day case or maternity [*classpat* = 1, 2 or 5] it is an admission episode [*epiorder* = 1] the sex of the patient is valid [*sex* = 1 or 2] there is a valid age at start of episode [*startage* between 0-120 or between 7001-7007] the region of residence is one of the English regions, no fixed abode or unknown [*resgor*<= K or U or Y] the episode end date [epiend] falls within the financial year an alcohol-attributable International Classification of Diseases (version 10) code (Appendix 1) appears in any diagnosis field [*diag_nn*] 2. For each episode identified in step 1 above, an alcohol-attributable fraction is applied to the primary diagnosis field

	[*diag_01*] or an alcohol-attributable external cause code (Appendix 1) appears in one of the secondary codes [*diag_02 to diag_20*] based on the diagnostic codes, age group and sex of the patient (Appendix 1). Where there is more than one alcohol-related International Classification of Diseases (version 10) code among the 20 possible diagnostic codes (from *diag_nn*) the code(s) with the largest alcohol-attributable fraction is selected. In the event of there being two or more codes with the same alcohol-attributable fraction within the same episode, select the one from the lowest diagnostic position [*diag_nn*]. ('Diagnostic position', takes an integer value between 1 and 20, corresponding to the 20 diagnosis fields [*diag_01* to *diag_20*]). 3. Calculate directly standardised rates by: aggregating alcohol-related admissions above by 5 year age groups (0-4, 5-9 to 85-89 and 90 years and over), for each area of residence using mid-year population estimates to derive age group and sex-specific rates for each area calculating directly age-standardised rate per 100,000 population, standardised to the European standard population The directly age-standardised rate is the rate of events that would occur in a standard population if that population were to experience the age/sex-specific rates of the subject population. Explicitly: $$DSR = \frac{\sum_i w_i r_i}{\sum_i w_i} \times 100{,}000$$ (expressed per 100,000 population) where: w_i is the number, or proportion, of individuals in the standard population in age/sex group i. r_i is the crude age/sex-specific rate in the subject population in age/sex group *i*, given by: $r_i = \frac{O_i}{n_i}$ where: O_i is the observed number of events in the subject population in age/sex group *i*.

	n_i is the number of individuals in the subject population in age/sex group *i*.
Summary footnote	Admission episodes for alcohol-related conditions (broad measure [primary diagnosis or any secondary diagnosis] and narrow measure [primary diagnosis or any secondary diagnosis with an external cause]), all ages, directly age-standardised rate per 100,000 population (standardised to the European standard population). Knowledge and Intelligence Team (North West) from hospital episode statistics 2012/13. Office for National Statistics mid-year population estimates 2012. Does not include attendance at Accident and Emergency departments.

6.3 Alcohol-related crime

18. Alcohol-related recorded crimes[f]
19. Alcohol-related violent crimes
20. Alcohol-related sexual offences

Recorded crime related to alcohol is calculated using the former UK Prime Minister's Strategy Unit's alcohol-attributable fractions (available at: webarchive.nationalarchives.gov.uk/20100407182953/http://www.cabinetoffice.gov.uk/media/cabinetoffice/strategy/assets/econ_annexes.pdf) and applying them to specific groups of recorded crimes. The alcohol-attributable fractions were taken from the Home Office New English and Welsh Arrestee Drug Abuse Monitoring System arrestee survey (NEW ADAM, 1999-2001) and were based on urine tests of arrestees. One in five arrestees tested positive for alcohol. Data were taken from 16 police stations in England and Wales; only offences with sample sizes of more than 50 arrestees have been included. Intoxicated arrestees were not interviewed, which suggests that some figures are likely to be underestimates and explains why drunkenness offences are not included. The proportions of arrestees testing positive for alcohol (and thus the associated attributable fractions) are shown in Table 1. The most recent recorded crime data (Table 2) for all local authorities in England were obtained from the Office for National Statistics and used to create crime groups to which an attributable fraction could be applied. Table 2 lists the current (referred to as New Office for National Statistics) recorded crime categories and outlines, given recent changes in the presentation of crime data, how these relate to the crime data (provided by the Home Office) previously used to produce Local Alcohol Profiles for England indicators. For further details see section 2.8.

[f] Please note that the alcohol-related recorded crimes only include those crimes for which an attributable fraction is available (see Table 2 for details) and it is an aggregate based upon the 'key offence' categories formerly released by the Home Office.

Table 2. Offence groupings for alcohol-related recorded crimes indicator

Offence groupings used in Local Alcohol Profiles for England	New Office for National Statistics crime grouping
Violence against the person	Homicide
	Violence with injury
	Violence without injury
Sexual offences	Sexual offences*
Robbery	Robbery
Burglary	Domestic burglary
Theft of a motor vehicle	Vehicle offences (also including 'Interfering with a motor vehicle offences')**
Theft from a motor vehicle	

*The sexual offences group no longer includes the categories of 'Exploitation of prostitution' and 'Soliciting for the purposes of prostitution offences'. Therefore, figures for these offences are now not part of the dataset used to calculate the LAPE 2014 indicators.
**'Interfering with a motor vehicle offences' were not previously included as part of the calculations for LAPE and for consistency these were also omitted this year.

Numerators were multiplied by the relevant alcohol-attributable fraction to obtain the number of alcohol-related recorded crimes, and results presented as crude rates.

Indicator details: alcohol-related recorded crimes (recorded crimes[g], violent crimes and sexual offences)

IDs	18, 19 and 20.
Indicator name	Alcohol-related recorded crimes,[e] alcohol-related violent crimes and alcohol-related sexual offences.
What is being measured	Recorded crime for selected key offences related to alcohol.
Who does it measure	All persons, all ages.
When does it measure	Financial year 2012/13. Trends are available for years 2008/09, 2009/10, 2010/11 and 2011/12.
Indicator definition	Alcohol-related recorded crimes, alcohol-related violent crimes and alcohol-related sexual offences, crude rate per 1,000 population, all ages, persons.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). Office for National Statistics recorded crime data are now published quarterly.
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) and PHE centres. The data download also provides data for government office regions.
Numerator definition	Annual counts of the following recorded crime offences, by location of incident in 2012/13, multiplied by the relevant alcohol-attributable fraction (Table 1): Alcohol-related recorded crimes (an aggregate of six offences [violence against the person, sexual offences, robbery, burglary dwelling, theft of a motor vehicle and theft from a motor vehicle]), Violence against the person, Sexual offences. Crimes are recorded using the practice governed by Home Office Counting Rules for Recorded Crime and the National Crime Recording Standard. Please see the following for more details: www.ons.gov.uk/ons/guide-method/method-quality/specific/crime-statistics-methodology/user-

[g] As already noted, this indicator is an aggregate based on the Home Office's former 'key offence' categories.

	guide-to-crime-statistics.pdf Numerator data have been used exactly as published in the Home Office supplied data. Where new unitary authorities, created as part of the 2009 boundary changes, are exactly coterminous with pre-existing counties (Cornwall, Durham, Northumberland, Shropshire and Wiltshire) the numerator data have been drawn from the relevant county figures. Where new unitary authorities represent only part of existing counties, numerator data have been aggregated from the relevant published figures for the constituent districts.
Numerator source	Office for National Statistics: www.ons.gov.uk/ons/rel/crime-stats/crime-statistics/period-ending-september-2013/index.html
Denominator definition	Mid-year population estimates, 2011.
Denominator source	Office for National Statistics.
Confidence interval methodology	Byar's methodology was used to generate 95% confidence intervals, as detailed in APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals.[5] The formula numbers below correspond to those in the briefing available from: (www.apho.org.uk/apho/techbrief.htm). An accompanying Excel spreadsheet, replicating all formulae, is also available from the link above. The rate of events *r* is given by: where: $r = \frac{O}{n}$ *O* is the numerator number of observed events; *n* is the denominator population-years at risk. The confidence limits for the rate *r* are given by: $r_{lower} = \frac{O_{lower}}{n}$ $r_{upper} = \frac{O_{upper}}{n}$ where: O_{lower} and O_{upper} are the lower and upper confidence limits for the observed count of events; Using Byar's method, the 100(1–α)% confidence limits for the observed number of events are given by:

	$$O_{lower} = O \times \left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$$ $$O_{upper} = (O+1) \times \left(1 - \frac{1}{9(O+1)} + \frac{z}{3\sqrt{(O+1)}}\right)^3$$ where: *z* is the 100(1–α/2)th percentile value from the standard normal distribution. For example, for a 95% confidence interval, α = 0.05 and *z* = 1.96 (i.e. the 97.5th percentile value from the standard normal distribution). The Excel formulae available at www.apho.org.uk/resource/item.aspx?RID=48457 were used to calculate confidence intervals. The spreadsheet uses Excel's built-in functions for exact probabilities for all cases based on numerators under 389, in order to give the most accurate results. For higher numerators, Excel's statistical functions fail (intermittently), and while macros are available to calculate exact Poisson probabilities, it is simpler to use Byar's method, and extremely accurate to do so.[5]
Caveats	Crimes that have not been reported to the police or incidents that the police decide not to record are not included. Caution needs to be taken when considering crime rates in London and other city centre areas due to the very small populations in these areas. The high reported crime rates in city centres are partly due to the use of small resident population figures as the denominator of the crime rate. The 'transient population' that migrates into these areas on a daily basis, either for work or leisure, will not be reflected in the resident population figures. Because data are based on crimes rather than offender, no data are available on the sex or age of the offender. Changes in population estimates between years must be borne in mind when comparing changes in crime rates. Rounded resident populations provided by the Office for National Statistics are used to generate rates; see Table 8c available through this link for further details on the populations: www.ons.gov.uk/ons/guide-method/method-quality/specific/crime-statistics-methodology/user-guide-to-crime-statistics.pdf Crime data are produced at Community Safety

	Partnership level. At the time of their introduction Community Safety Partnerships were formed to match each local authority area. As a result of mergers of both local authorities and Community Safety Partnerships, availability of data for local authorities in England changes from year to year. Where an area has no numerator or denominator data displayed, the rate is combined with another area(s). Please see 'Information on police recorded crime at Community Safety Partnership level' for further details - ons.gov.uk/ons/rel/crime-stats/crime-statistics/period-ending-march-2013---supplementary-tables/rft-recorded-crime-data-at-community-safety-partnership---local-authority-level-from-2002-03.zip Recent crime trend data suggest that rates of crime overall are falling (for further details see: www.ons.gov.uk/ons/rel/crime-stats/crime-statistics/period-ending-september-2013/index.html), Conversely there is some evidence of increasing reports of sexual offences (for further details see: www.ons.gov.uk/ons/rel/crime-stats/crime-statistics/period-ending-june-2013/index.html). This could arguably be due to a number of factors, for example, improvements in the recording of such offences as well as the increased awareness of such crimes given numerous high profile sex-related cases in the media during recent months in turn leading to increased reporting for sexual crimes (including those that might have happened a number of years ago).
Method used to create this indicator	The alcohol-attributable fractions in Table 1 were applied to the recorded crime offences for 1) alcohol-related recorded crimes, 2) violence against the person, and 3) sexual offences. Please note that the alcohol-related recorded crime indicator is a sum of the following recorded offences; violence against the person, sexual offences, robbery, burglary dwelling, theft of a motor vehicle and theft from a motor vehicle. Crude rates were calculated using mid-year Office for National Statistics populations. Crude rates per 1,000 were calculated using the following formula: *((a x b)/c) x 1,000* where: *a* = alcohol-attributable fraction

	b = number of offences *c* = Office for National Statistics population estimate, all ages The following formula was used to calculate the sum of the six offences included in the alcohol-related crime rate indicator: $((a^1 \times b^1) + (a^2 \times b^2) + (a^3 \times b^3) + (a^4 \times b^4) + (a^5 \times b^5) + (a^6 \times b^6))/c) \times 1{,}000$
Summary footnote	Alcohol-related recorded crimes (based on the Home Office's former 'key offence' categories), all ages, persons, crude rate per 1,000 population. Knowledge and Intelligence Team (North West) from Office for National Statistics recorded crime statistics 2012/13. Office for National Statistics 2011 mid-year populations. Attributable fractions for alcohol for each crime category were applied, based on survey data on arrestees who tested positive for alcohol by the UK Prime Minister's Strategy Unit.

6.4 Alcohol consumption by adults

21. Abstainers synthetic estimate
22. Lower risk drinking (as a percentage of drinkers) synthetic estimate
23. Increasing risk drinking (as a percentage of drinkers) synthetic estimate
24. Higher risk drinking (as a percentage of drinkers) synthetic estimate
25. Binge drinking synthetic estimate

Five synthetic drinking estimates are included in Local Alcohol Profiles for England 2014. The abstainers, lower risk, increasing risk and higher risk drinking estimates were developed by the former North West Public Health Observatory (now the Knowledge and Intelligence Team [North West]) and the binge drinking estimates by the National Centre for Social Research and East Midlands Public Health Observatory (now the Knowledge and Intelligence Team [East Midlands]). These local area synthetic estimates are generated from statistical models combining national survey and local area level data.

Indicator details: alcohol consumption by adults (synthetic estimates)

IDs	21, 22, 23 and 24.
Indicator name	Abstainers from drinking, lower risk drinking (as a percentage of drinkers), increasing risk drinking (as a percentage of drinkers) and higher risk drinking (as a percentage of drinkers), synthetic estimates.
What is being measured	Percentage of adults aged 16 and over who abstain from drinking, and who are lower/increasing/higher risk drinkers (as a percentage of drinkers).
Who does it measure	Persons, aged 16 years and over.
When does it measure	Multinomial logistic regression model calculated using the General Lifestyle Survey 2008 and 2009. Predicted probabilities from the model are applied to mid-2010 population data.
Indicator definition	Estimate of the percentage of those who abstain from drinking, lower risk drinking (as a percentage of drinkers) increasing risk drinking (as a percentage of drinkers) and higher risk drinking (as a percentage of drinkers) of resident drinking population, 2008/09, persons, aged 16 years and over.
Timeliness	Produced by the former North West Public Health Observatory (now the Knowledge and Intelligence Team [North West]) in 2011 for the Department of Health. Updated estimates could be provided in the future.
Geographical coverage	England, government office regions, 2009 local authority (local authority) districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts).The data download also provides data for government office regions.
Numerator definition	2009 synthetic estimate of the percentage of the total adult population, who report abstaining and the proportion of the adult drinking population who report engaging in lower risk/increasing risk/higher risk drinking, where: • lower risk drinking is defined as usual consumption of fewer than 22 units of alcohol per week for males, and fewer than 15 units of alcohol per week for females • increasing risk drinking is defined as usual

	consumption of between 22 and 50 units of alcohol per week for males, and between 15 and 35 units of alcohol per week for females • higher risk drinking is defined as usual consumption of more than 50 units of alcohol per week for males, and more than 35 units of alcohol per week for females
Numerator source	Modelled estimates produced by the former North West Public Health Observatory (now the Knowledge and Intelligence Team [North West]), using data from multiple sources including: • the General Lifestyle Survey, 2008 and 2009 • alcohol-specific hospital admission 2007/08 to 2009/10 • Index of Multiple Deprivation 2010, Department for Communities and Local Government • Beacon and Dodsworth P^2 People and Places classification (People and Places Trees)
Denominator definition	Mid-year 2010 population estimates: estimated resident population by ethnic group (proportions of mid-2009 population estimates by ethnic group applied to mid-2010 population estimates) age bands (16-19, 20-25,…,70-74, 75+) and sex (May 2011 release), the Office for National Statistics.
Denominator source	Bespoke request for the former North West Public Health Observatory (now the Knowledge and Intelligence Team [North West]) from Office for National Statistics date file produced February 2012.
Confidence interval methodology	Using Monte Carlo methods, estimates of 95% confidence intervals for each local authority were calculated using the variation in the coefficients for each covariate in Tables 1 to 6, sampling from the distribution: $N(\beta_{ij}, se_{ij}^2)$ where: N is the normal distribution i are the covariates j are the model states (>0 to 9 units, 10 to 14 units, 15

	to 21 units, 22 to 35 units, 36 to 50 units and >50 units). β_{ij} is the mean coefficient value for covariate i, state j (listed in Tables 1 to 6) se is the standard error of β (listed in Tables 1 to 6) 1,000 estimates were generated for the prevalence of people who abstain from drinking and lower, increasing and higher risk drinkers (of the drinking population) using equations: $P_s(x_i) = \frac{exp(x_i^T \beta_s)}{1+\sum_t exp(x_i^T \beta_t)}$ for s ≠ 1 $P_1(x_i) = \frac{1}{1+\sum_t exp(x_i^T \beta_t)}$ where s are the states: 1. Abstainers 2. Consume >0 to 9 units 3. Consume 10 to 14 units 4. Consume 15 to 21 units 5. Consume 22 to 35 units 6. Consume 36 to 50 units 7. Consume > 50 units x_i is the vector of attributes of the ith local authority. β_s is the sampled vector of coefficients for state s. β t are the sampled vector of coefficients for states 2 to 7. By replacing the mean β values (Tables 3 to 8) with the sample from the β distribution a different sampled estimate for each of the 1,000 estimates is calculated. This gives a sampled distribution for each state. By sorting the 1,000 estimates in ascending order, for each state in turn, then removing the first and last 2.5% of observations gives a sampled 95% confidence interval.
Caveats	General Lifestyle Survey data are based on self-reported drinking behaviour and self-reported consumption, which may be prone to respondent bias. The General Lifestyle Survey only includes people in private households and does not, therefore, include

	people in institutions such as prisons or care homes, or those who are homeless. The people excluded from participation may have a different pattern of alcohol consumption. Not all participants selected for inclusion participated in the survey, possibly introducing selection bias, where those that agreed to take part in the survey differed systematically from those who did not. These are modelled estimates based on national survey data. The process assumes that the relationships identified in the national General Lifestyle Survey between alcohol consumption and age, sex and ethnicity are the same at the local authority level; the model-based estimates are unable to take account of any additional local factors that may impact on the true prevalence. The General Lifestyle Survey collects information on a range of topics from people living in private households in Great Britain and samples approximately 9,000 responding households per annum. More details can be found at: data.gov.uk/dataset/general_lifestyle_survey Proportions of mid-2009 population estimates by ethnic group are applied to mid-2010 populations. Mid-2009 population estimates by ethnic group, released in May 2011, by the Office for National Statistics are experimental statistics. This means that, when these estimates were generated, ethnicity populations had not been shown to meet the quality criteria for the Office for National Statistics, but were published to involve users in the development of the methodology and to help build quality at an early stage.
Method used to create this indicator	Estimates for abstainers and lower risk, increasing risk and higher risk drinking (as a percentage of the drinking population) were derived from a statistical model developed to estimate the percentage of males and females who abstain, consume >0 to 9 units, 10 to 14 units, 15 to 21 units, 22 to 35 units, 36 to 50 units and >50 units (per week) in Lower Super Output Areas. The overall process of producing these prevalence estimates for abstainers and lower risk, increasing risk

	and higher risk drinking (as a percentage of the drinking population) involved a number of steps: 1. The probability of abstaining or being a lower, increasing or higher risk drinker was modelled using multinomial regression as a function of variables measured at the individual (age, sex, ethnicity) and area (Index of Multiple Deprivation 2010 quintiles, P^2 People and Places classification) and alcohol-specific hospital admission (2007/08 to 2009/10) quintiles. 2. The model was used to generate estimated probabilities for seven categories (abstainers and each consumption group) by age group, sex and ethnicity for all Lower Super Output Areas. 3. Age, sex, ethnicity, Index of Multiple Deprivation 2010, P^2 People and Places and alcohol-specific hospital admission quintile probabilities were applied to the age, sex and ethnicity specific population estimates for each 2001 Lower Super Output Area to provide an estimate of the overall number in each of the consumption categories. 4. The consumption categories were transformed to abstaining and lower, increasing and higher risk drinking groups based on the specific male and female thresholds. 5. 2001 Lower Super Output Areas were aggregated to local authority/former government office regions/England level. Predictive modelling in detail: To compile the predictive model, individual level data from the General Lifestyle Survey 2008 and 2009 along with a number of 2001 Lower Super Output Area level covariates were used to determine the relationship between abstainers, consumers of >0 to 9 units, 10 to 14 units, 15 to 21 units, 22 to 35 units, 36 to 50 units and >50 units (per week). The variables used in the final model included: • Three individual level variables: o age bands (16-19, 20-24, …, 70-74, 75+ years) o sex o ethnic groups (white, Asian and black/other) • Two 2001 Lower Super Output Areas level

covariates transformed to quintiles:
- o Index of Multiple Deprivation 2010
- o Alcohol-specific hospital admission 2007/08 to 2009/10, persons

• A further geographic identifier, P^2 People and Places classification, was included to capture sub region-level unobserved heterogeneity.

Predicted probabilities and 2001 Lower Super Output Areas prevalence estimates

For each 2001 Lower Super Output Areas, a series of population subgroups were defined according to:
(a) Sex (male, female)
(b) Ethnicity (white, Asian and black/other)
(c) Age-band (16-19, 20-24, …, 70-74 and 75+ years)
Along with 2001 Lower Super Output Areas level covariate values for Index of Multiple Deprivation (2010) and alcohol-specific hospital admission (2007/08 to 2009/10 hospital episode statistics) and P^2 People and Places classification.
The updated covariate values were then substituted in the final multinomial logistic regression model, and predicted probabilities obtained using:

$$P_s(x_i) = \frac{exp(x_i^T \beta_s)}{1+\sum_t exp(x_i^T \beta_t)} \qquad \text{for } s \neq 1$$

$$P_1(x_i) = \frac{1}{1+\sum_t exp(x_i^T \beta_t)}$$

where
s are the states:
1. Abstainers
2. Consume >0 to 9 units
3. Consume 10 to 14 units
4. Consume 15 to 21 units
5. Consume 22 to 35 units
6. Consume 36 to 50 units
7. Consume > 50 units

x_i is the vector of attributes of the *i*th local authority
β_s is the vector of coefficients (Tables 3 to 8) for state s
β_t are the vector of coefficients for states 2 to 7.
Mid-2010 population estimates for Lower Super Output Areas by age bands (16-19, 20-25…70-74,

	75+), sex and ethnicity were obtained from Office for National Statistics. These estimated populations were multiplied by the predicted probabilities for each of the seven consumption groupings in the respective age/sex/ethnicity group, to obtain predicted numbers. These 2001 Lower Super Output Area level predicted numbers were aggregated to Local Authority level. Overall prevalence estimates were obtained by summing the predicted numbers of abstainers and lower risk, increasing risk and higher risk drinkers over all sex/age/ethnicity groups in each local authority.

Table 3. Estimated model parameters for drinkers consuming >0 to 9 units with respect to the base category (abstainers)

NewDrinkCat[a]		B	Std. Error	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
						Lower Bound	Upper Bound
>0 to 9	Intercept	-1.981	0.275	0			
	[AS_Adm_3yr_Qtle=1]	-0.03	0.086	0.73	0.971	0.819	1.15
	[AS_Adm_3yr_Qtle=2]	0.021	0.082	0.795	1.021	0.871	1.198
	[AS_Adm_3yr_Qtle=3]	0.081	0.076	0.286	1.085	0.934	1.259
	[AS_Adm_3yr_Qtle=4]	-0.073	0.068	0.281	0.929	0.813	1.062
	[AS_Adm_3yr_Qtle=5]	0b	.	.	.	.	.
	male	0.27	0.042	0	1.31	1.206	1.423
	female	0b	.	.	.	.	.
	White	2.391	0.093	0	10.922	9.098	13.111
	Black	0.965	0.118	0	2.624	2.082	3.308
	Asian	0b	.	.	.	.	.
	AG15	0.317	0.097	0.001	1.373	1.134	1.661
	AG20	0.914	0.114	0	2.494	1.994	3.119
	AG25	0.897	0.102	0	2.452	2.008	2.993
	AG30	0.951	0.096	0	2.588	2.145	3.123
	AG35	1.021	0.09	0	2.776	2.327	3.311
	AG40	1.072	0.092	0	2.92	2.44	3.495
	AG45	0.848	0.088	0	2.335	1.963	2.777
	AG50	0.914	0.093	0	2.495	2.08	2.993
	AG55	0.68	0.087	0	1.973	1.663	2.342
	AG60	0.625	0.081	0	1.868	1.594	2.188
	AG65	0.47	0.084	0	1.6	1.358	1.884
	AG70	0.394	0.084	0	1.482	1.257	1.748
	AG75+	0b	.	.	.	.	.
	[IMD_LSOA_Qtile=1]	0.111	0.117	0.343	1.117	0.889	1.405
	[IMD_LSOA_Qtile=2]	0.204	0.105	0.053	1.226	0.997	1.507
	[IMD_LSOA_Qtile=3]	0.088	0.096	0.359	1.092	0.905	1.318
	[IMD_LSOA_Qtile=4]	0.058	0.076	0.444	1.06	0.913	1.229
	[IMD_LSOA_Qtile=5]	0b	.	.	.	.	.
	[Peopleandplaces=A]	0.298	0.266	0.262	1.347	0.8	2.267
	[Peopleandplaces=B]	0.031	0.264	0.905	1.032	0.615	1.731
	[Peopleandplaces=C]	0.152	0.27	0.573	1.164	0.685	1.979
	[Peopleandplaces=D]	0.139	0.259	0.591	1.149	0.691	1.911
	[Peopleandplaces=E]	0.197	0.271	0.467	1.218	0.717	2.069
	[Peopleandplaces=F]	0.148	0.268	0.582	1.159	0.685	1.961
	[Peopleandplaces=G]	0.061	0.255	0.812	1.062	0.644	1.751
	[Peopleandplaces=H]	0.17	0.274	0.535	1.186	0.692	2.03
	[Peopleandplaces=I]	0.037	0.267	0.891	1.037	0.614	1.751
	[Peopleandplaces=J]	0.117	0.257	0.65	1.124	0.679	1.861
	[Peopleandplaces=K]	0.133	0.263	0.612	1.142	0.683	1.912
	[Peopleandplaces=L]	0.197	0.278	0.48	1.217	0.705	2.101
	[Peopleandplaces=M]	0.133	0.323	0.68	1.142	0.606	2.152
	[Peopleandplaces=U]	0b	.	.	.	.	.

The reference category is: Abstain

This parameter is set to zero because it is redundant.

Table 4. Estimated model parameters for drinkers consuming 10 to 14 units with respect to the base category (abstainers)

NewDrinkCat[a]		B	Std. Error	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
						Lower Bound	Upper Bound
10 to 14	Intercept	-4.118	0.411	0			
	[AS_Adm_3yr_Qtle=1]	-0.09	0.119	0.451	0.914	0.724	1.154
	[AS_Adm_3yr_Qtle=2]	-0.194	0.114	0.09	0.824	0.658	1.031
	[AS_Adm_3yr_Qtle=3]	-0.065	0.107	0.54	0.937	0.76	1.155
	[AS_Adm_3yr_Qtle=4]	-0.162	0.097	0.093	0.85	0.703	1.028
	[AS_Adm_3yr_Qtle=5]	0b	.	.	.	.	.
	male	0.727	0.056	0	2.068	1.852	2.31
	female	0b	.	.	.	.	.
	White	2.875	0.198	0	17.726	12.024	26.132
	Black	0.728	0.261	0.005	2.071	1.241	3.455
	Asian	0b	.	.	.	.	.
	AG15	0.299	0.158	0.058	1.348	0.99	1.837
	AG20	1.388	0.156	0	4.005	2.951	5.435
	AG25	1.415	0.14	0	4.116	3.127	5.418
	AG30	1.342	0.134	0	3.827	2.94	4.982
	AG35	1.315	0.128	0	3.726	2.898	4.791
	AG40	1.629	0.124	0	5.099	3.997	6.504
	AG45	1.278	0.124	0	3.591	2.815	4.582
	AG50	1.217	0.131	0	3.376	2.612	4.364
	AG55	1.134	0.123	0	3.107	2.44	3.956
	AG60	0.815	0.12	0	2.259	1.785	2.86
	AG65	0.759	0.124	0	2.137	1.678	2.722
	AG70	0.54	0.128	0	1.716	1.336	2.205
	AG75+	0b	.	.	.	.	.
	[IMD_LSOA_Qtile=1]	0.301	0.164	0.067	1.351	0.98	1.863
	[IMD_LSOA_Qtile=2]	0.336	0.15	0.026	1.399	1.042	1.878
	[IMD_LSOA_Qtile=3]	0.213	0.139	0.124	1.238	0.943	1.625
	[IMD_LSOA_Qtile=4]	0.083	0.11	0.451	1.087	0.875	1.349
	[IMD_LSOA_Qtile=5]	0b	.	.	.	.	.
	[Peopleandplaces=A]	0.005	0.366	0.989	1.005	0.491	2.058
	[Peopleandplaces=B]	-0.447	0.366	0.221	0.639	0.312	1.309
	[Peopleandplaces=C]	-0.312	0.373	0.403	0.732	0.352	1.521
	[Peopleandplaces=D]	-0.219	0.359	0.541	0.803	0.398	1.622
	[Peopleandplaces=E]	-0.021	0.372	0.955	0.979	0.472	2.03
	[Peopleandplaces=F]	-0.183	0.37	0.621	0.833	0.403	1.72
	[Peopleandplaces=G]	-0.441	0.354	0.213	0.644	0.322	1.287
	[Peopleandplaces=H]	-0.255	0.381	0.503	0.775	0.367	1.634
	[Peopleandplaces=I]	-0.411	0.377	0.275	0.663	0.317	1.387
	[Peopleandplaces=J]	-0.378	0.358	0.291	0.685	0.34	1.381
	[Peopleandplaces=K]	-0.332	0.365	0.363	0.717	0.351	1.468
	[Peopleandplaces=L]	-0.234	0.387	0.546	0.791	0.37	1.691
	[Peopleandplaces=M]	-0.66	0.472	0.161	0.517	0.205	1.302
	[Peopleandplaces=U]	0b	.	.	.	.	.

The reference category is: Abstain

This parameter is set to zero because it is redundant.

Table 5. Estimated model parameters for drinkers consuming 15 to 21 units with respect to the base category (abstainers)

NewDrinkCat[a]		B	Std. Error	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
						Lower Bound	Upper Bound
15 to 21	Intercept	-5.977	0.535	0			
	[AS_Adm_3yr_Qtle=1]	-0.231	0.123	0.06	0.794	0.624	1.01
	[AS_Adm_3yr_Qtle=2]	-0.172	0.117	0.141	0.842	0.67	1.059
	[AS_Adm_3yr_Qtle=3]	-0.071	0.109	0.513	0.931	0.752	1.153
	[AS_Adm_3yr_Qtle=4]	-0.216	0.1	0.03	0.805	0.662	0.979
	[AS_Adm_3yr_Qtle=5]	0b	.	.	.	.	.
	male	1.054	0.058	0	2.87	2.561	3.216
	female	0b	.	.	.	.	.
	White	3.223	0.23	0	25.101	16.006	39.365
	Black	0.617	0.313	0.049	1.854	1.003	3.427
	Asian	0b	.	.	.	.	.
	AG15	0.783	0.163	0	2.188	1.59	3.012
	AG20	1.81	0.165	0	6.112	4.427	8.439
	AG25	1.731	0.152	0	5.646	4.192	7.606
	AG30	1.578	0.148	0	4.844	3.624	6.474
	AG35	1.82	0.137	0	6.17	4.722	8.063
	AG40	1.902	0.137	0	6.7	5.127	8.756
	AG45	1.749	0.133	0	5.748	4.425	7.467
	AG50	1.796	0.137	0	6.023	4.6	7.884
	AG55	1.456	0.135	0	4.291	3.295	5.587
	AG60	1.227	0.13	0	3.409	2.641	4.401
	AG65	1.107	0.135	0	3.024	2.323	3.937
	AG70	0.651	0.145	0	1.917	1.442	2.547
	AG75+	0b	.	.	.	.	.
	[IMD_LSOA_Qtile=1]	0.538	0.17	0.002	1.713	1.227	2.389
	[IMD_LSOA_Qtile=2]	0.624	0.155	0	1.867	1.377	2.531
	[IMD_LSOA_Qtile=3]	0.463	0.143	0.001	1.589	1.199	2.104
	[IMD_LSOA_Qtile=4]	0.347	0.115	0.003	1.415	1.13	1.773
	[IMD_LSOA_Qtile=5]	0b	.	.	.	.	.
	[Peopleandplaces=A]	0.672	0.483	0.164	1.958	0.76	5.047
	[Peopleandplaces=B]	0.405	0.482	0.401	1.499	0.583	3.856
	[Peopleandplaces=C]	0.421	0.489	0.39	1.523	0.584	3.971
	[Peopleandplaces=D]	0.455	0.477	0.34	1.576	0.619	4.018
	[Peopleandplaces=E]	0.742	0.488	0.128	2.099	0.807	5.459
	[Peopleandplaces=F]	0.371	0.488	0.447	1.45	0.557	3.774
	[Peopleandplaces=G]	0.365	0.473	0.441	1.44	0.57	3.64
	[Peopleandplaces=H]	0.574	0.494	0.246	1.775	0.674	4.677
	[Peopleandplaces=I]	0.618	0.49	0.207	1.856	0.711	4.846
	[Peopleandplaces=J]	0.432	0.476	0.365	1.54	0.605	3.918
	[Peopleandplaces=K]	0.385	0.484	0.426	1.47	0.57	3.792
	[Peopleandplaces=L]	0.408	0.506	0.42	1.504	0.558	4.051
	[Peopleandplaces=M]	0.452	0.563	0.421	1.572	0.522	4.736
	[Peopleandplaces=U]	0b	.	.	.	.	.

The reference category is: Abstain

This parameter is set to zero because it is redundant.

Table 6. Estimated model parameters for drinkers consuming 22 to 35 units with respect to the base category (abstainers)

NewDrinkCat[a]		B	Std. Error	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
						Lower Bound	Upper Bound
22 to 35	Intercept	-5.648	0.477	0			
	[AS_Adm_3yr_Qtle=1]	-0.103	0.12	0.391	0.902	0.713	1.142
	[AS_Adm_3yr_Qtle=2]	-0.023	0.114	0.841	0.977	0.782	1.222
	[AS_Adm_3yr_Qtle=3]	-0.079	0.108	0.463	0.924	0.747	1.142
	[AS_Adm_3yr_Qtle=4]	-0.094	0.097	0.336	0.911	0.753	1.102
	[AS_Adm_3yr_Qtle=5]	0b	.	.	.	.	.
	male	1.298	0.057	0	3.663	3.274	4.098
	female	0b	.	.	.	.	.
	White	3.257	0.221	0	25.964	16.844	40.021
	Black	0.586	0.304	0.054	1.796	0.989	3.262
	Asian	0b	.	.	.	.	.
	AG15	0.795	0.158	0	2.215	1.624	3.022
	AG20	1.703	0.164	0	5.493	3.98	7.582
	AG25	1.666	0.151	0	5.289	3.937	7.104
	AG30	1.547	0.146	0	4.697	3.53	6.249
	AG35	1.792	0.134	0	6	4.613	7.805
	AG40	1.983	0.133	0	7.266	5.603	9.421
	AG45	1.813	0.13	0	6.128	4.753	7.901
	AG50	1.825	0.134	0	6.201	4.768	8.064
	AG55	1.582	0.13	0	4.863	3.772	6.269
	AG60	1.31	0.126	0	3.706	2.897	4.741
	AG65	1.088	0.131	0	2.97	2.295	3.843
	AG70	0.701	0.139	0	2.015	1.533	2.648
	AG75+	0b	.	.	.	.	.
	[IMD_LSOA_Qtile=1]	0.269	0.164	0.102	1.308	0.948	1.805
	[IMD_LSOA_Qtile=2]	0.354	0.15	0.018	1.425	1.062	1.912
	[IMD_LSOA_Qtile=3]	0.284	0.138	0.039	1.329	1.015	1.74
	[IMD_LSOA_Qtile=4]	0.055	0.111	0.622	1.056	0.85	1.312
	[IMD_LSOA_Qtile=5]	0b	.	.	.	.	.
	[Peopleandplaces=A]	0.482	0.422	0.254	1.62	0.708	3.706
	[Peopleandplaces=B]	0.137	0.421	0.745	1.147	0.502	2.618
	[Peopleandplaces=C]	0.072	0.43	0.868	1.074	0.463	2.494
	[Peopleandplaces=D]	0.122	0.416	0.769	1.13	0.5	2.556
	[Peopleandplaces=E]	0.378	0.429	0.378	1.459	0.63	3.38
	[Peopleandplaces=F]	0.214	0.427	0.617	1.238	0.536	2.858
	[Peopleandplaces=G]	0.022	0.412	0.956	1.023	0.456	2.293
	[Peopleandplaces=H]	0.475	0.432	0.272	1.609	0.689	3.754
	[Peopleandplaces=I]	0.37	0.428	0.387	1.448	0.626	3.349
	[Peopleandplaces=J]	0.111	0.415	0.789	1.118	0.495	2.522
	[Peopleandplaces=K]	0.022	0.423	0.959	1.022	0.446	2.343
	[Peopleandplaces=L]	-0.159	0.449	0.723	0.853	0.354	2.056
	[Peopleandplaces=M]	-0.336	0.527	0.523	0.714	0.254	2.008
	[Peopleandplaces=U]	0b	.	.	.	.	.

The reference category is: Abstain

This parameter is set to zero because it is redundant.

Table 7. Estimated model parameters for drinkers consuming 36 to 50 units with respect to the base category (abstainers)

NewDrinkCat[a]		B	Std. Error	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
						Lower Bound	Upper Bound
36 to 50	Intercept	-7.042	0.627	0			
	[AS_Adm_3yr_Qtle=1]	-0.362	0.16	0.024	0.696	0.509	0.953
	[AS_Adm_3yr_Qtle=2]	-0.281	0.152	0.065	0.755	0.56	1.017
	[AS_Adm_3yr_Qtle=3]	-0.194	0.143	0.176	0.824	0.622	1.091
	[AS_Adm_3yr_Qtle=4]	-0.338	0.132	0.011	0.713	0.551	0.924
	[AS_Adm_3yr_Qtle=5]	0b	.	.	.	.	.
	male	1.596	0.079	0	4.934	4.229	5.758
	female	0b	.	.	.	.	.
	White	3.501	0.363	0	33.132	16.258	67.522
	Black	0.808	0.483	0.095	2.242	0.87	5.783
	Asian	0b	.	.	.	.	.
	AG15	1.152	0.237	0	3.165	1.991	5.032
	AG20	2.39	0.222	0	10.908	7.053	16.871
	AG25	1.98	0.223	0	7.243	4.683	11.203
	AG30	1.867	0.217	0	6.471	4.228	9.904
	AG35	2.265	0.197	0	9.633	6.545	14.179
	AG40	2.245	0.199	0	9.443	6.393	13.95
	AG45	2.102	0.196	0	8.18	5.57	12.014
	AG50	2.352	0.195	0	10.51	7.173	15.399
	AG55	2.041	0.193	0	7.696	5.276	11.224
	AG60	1.751	0.19	0	5.76	3.969	8.361
	AG65	1.202	0.208	0	3.328	2.212	5.007
	AG70	0.812	0.223	0	2.253	1.454	3.489
	AG75+	0b	.	.	.	.	.
	[IMD_LSOA_Qtile=1]	0.794	0.226	0	2.212	1.419	3.448
	[IMD_LSOA_Qtile=2]	0.838	0.209	0	2.312	1.537	3.48
	[IMD_LSOA_Qtile=3]	0.757	0.193	0	2.133	1.462	3.111
	[IMD_LSOA_Qtile=4]	0.471	0.158	0.003	1.601	1.175	2.182
	[IMD_LSOA_Qtile=5]	0b	.	.	.	.	.
	[Peopleandplaces=A]	-0.168	0.499	0.736	0.845	0.318	2.248
	[Peopleandplaces=B]	-0.341	0.497	0.493	0.711	0.269	1.883
	[Peopleandplaces=C]	-0.368	0.508	0.469	0.692	0.256	1.874
	[Peopleandplaces=D]	-0.426	0.49	0.385	0.653	0.25	1.708
	[Peopleandplaces=E]	-0.079	0.506	0.876	0.924	0.343	2.493
	[Peopleandplaces=F]	-0.363	0.507	0.473	0.695	0.258	1.877
	[Peopleandplaces=G]	-0.476	0.483	0.325	0.621	0.241	1.602
	[Peopleandplaces=H]	0.09	0.51	0.86	1.094	0.403	2.972
	[Peopleandplaces=I]	-0.215	0.515	0.676	0.806	0.294	2.214
	[Peopleandplaces=J]	-0.435	0.49	0.375	0.647	0.247	1.692
	[Peopleandplaces=K]	-0.407	0.503	0.419	0.666	0.248	1.786
	[Peopleandplaces=L]	-0.152	0.536	0.777	0.859	0.301	2.455
	[Peopleandplaces=M]	-0.19	0.625	0.761	0.827	0.243	2.813
	[Peopleandplaces=U]	0b	.	.	.	.	.

The reference category is: Abstain

This parameter is set to zero because it is redundant.

Table 8. Estimated model parameters for drinkers consuming >50 units with respect to the base category (abstainers)

NewDrinkCat[a]		B	Std. Error	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
						Lower Bound	Upper Bound
50+	Intercept	-7.262	0.625	0			
	[AS_Adm_3yr_Qtle=1]	-0.064	0.163	0.693	0.938	0.681	1.29
	[AS_Adm_3yr_Qtle=2]	0.234	0.151	0.119	1.264	0.941	1.698
	[AS_Adm_3yr_Qtle=3]	0.037	0.144	0.798	1.038	0.782	1.377
	[AS_Adm_3yr_Qtle=4]	-0.156	0.133	0.24	0.856	0.66	1.11
	[AS_Adm_3yr_Qtle=5]	0b	.	.	.	.	.
	male	1.916	0.083	0	6.793	5.773	7.993
	female	0b	.	.	.	.	.
	White	3.668	0.388	0	39.162	18.324	83.697
	Black	1.239	0.473	0.009	3.454	1.367	8.723
	Asian	0b	.	.	.	.	.
	AG15	1.621	0.233	0	5.058	3.201	7.993
	AG20	2.469	0.238	0	11.815	7.417	18.822
	AG25	2.248	0.23	0	9.471	6.029	14.877
	AG30	2.143	0.225	0	8.525	5.485	13.251
	AG35	2.27	0.214	0	9.683	6.368	14.723
	AG40	2.573	0.208	0	13.109	8.723	19.699
	AG45	2.467	0.204	0	11.793	7.901	17.601
	AG50	2.37	0.211	0	10.697	7.074	16.174
	AG55	2.063	0.209	0	7.869	5.225	11.852
	AG60	1.972	0.202	0	7.188	4.841	10.673
	AG65	1.678	0.21	0	5.354	3.545	8.086
	AG70	0.975	0.235	0	2.652	1.674	4.202
	AG75+	0b	.	.	.	.	.
	[IMD_LSOA_Qtile=1]	0.246	0.221	0.266	1.279	0.829	1.973
	[IMD_LSOA_Qtile=2]	0.465	0.199	0.02	1.591	1.077	2.352
	[IMD_LSOA_Qtile=3]	0.169	0.186	0.364	1.184	0.823	1.703
	[IMD_LSOA_Qtile=4]	-0.044	0.152	0.771	0.957	0.711	1.288
	[IMD_LSOA_Qtile=5]	0b	.	.	.	.	.
	[Peopleandplaces=A]	-0.599	0.477	0.21	0.55	0.216	1.401
	[Peopleandplaces=B]	-0.543	0.473	0.251	0.581	0.23	1.468
	[Peopleandplaces=C]	-0.685	0.487	0.16	0.504	0.194	1.309
	[Peopleandplaces=D]	-0.792	0.468	0.09	0.453	0.181	1.132
	[Peopleandplaces=E]	-0.21	0.483	0.664	0.811	0.315	2.09
	[Peopleandplaces=F]	-0.482	0.483	0.318	0.617	0.24	1.592
	[Peopleandplaces=G]	-0.358	0.458	0.435	0.699	0.285	1.717
	[Peopleandplaces=H]	0.163	0.484	0.736	1.178	0.456	3.044
	[Peopleandplaces=I]	-0.572	0.495	0.248	0.565	0.214	1.49
	[Peopleandplaces=J]	-0.691	0.467	0.139	0.501	0.2	1.252
	[Peopleandplaces=K]	-0.486	0.477	0.308	0.615	0.241	1.566
	[Peopleandplaces=L]	-0.533	0.512	0.297	0.587	0.215	1.6
	[Peopleandplaces=M]	-0.458	0.595	0.442	0.633	0.197	2.032
	[Peopleandplaces=U]	0b	.	.	.	.	.

The reference category is: Abstain
This parameter is set to zero because it is redundant.

Summary footnote	Abstainers: Mid 2009 synthetic estimate of the percentage of

	abstainers in the population aged 16 years and over who report abstaining from drinking. Estimates were derived from a statistical model developed to estimate the percentage of abstainers, lower risk (as a percentage of drinkers), increasing risk (as a percentage of drinkers) and higher risk drinkers (as a percentage of drinkers) in local authority populations. The Local Alcohol Profiles for England 2012 refresh of this indicator (and included in subsequent refreshes of data) was generated using an enhanced methodology (see metadata for details) and care should be taken when comparing these with previous estimates. Lower risk drinking (as a percentage of drinkers): Mid 2009 synthetic estimate of the percentage of drinkers in the population aged 16 years and over who report engaging in lower risk drinking (consumption of fewer than 22 units of alcohol per week for males, and fewer than 15 units of alcohol per week for females). Estimates were derived from a statistical model developed to estimate the percentage of abstainers, lower risk (as a percentage of drinkers), increasing risk (as a percentage of drinkers) and higher risk (as a percentage of drinkers) drinkers in local authority populations. The Local Alcohol Profiles for England 2012 refresh for this indicator (and included in subsequent refreshes of data) was generated using an enhanced methodology (see metadata for details) and care should be taken when comparing these with previous estimates. Increasing risk drinking (as a percentage of drinkers): Mid 2009 synthetic estimate of the percentage of drinkers in the population aged 16 years and over who report engaging in increasing risk drinking (consumption of between 22 and 50 units of alcohol per week for males, and between 15 and 35 units of alcohol per week for females). Estimates were derived from a statistical model developed to estimate the percentage of abstainers, lower risk (as a percentage of drinkers), increasing risk (as a percentage of drinkers) and higher risk (as a percentage of drinkers)

	drinkers in local authority populations. The Local Alcohol Profiles for England 2012 refresh for this indicator (and included in subsequent refreshes of data) was generated using an enhanced methodology (see metadata for details) and care should be taken when comparing these with previous estimates. Higher risk drinking (as a percentage of drinkers): Mid 2009 synthetic estimate of the percentage of drinkers in the population aged 16 years and over who report engaging in higher risk drinking (consuming more than 50 units of alcohol per week for males, and more than 35 units of alcohol per week for females). Estimates were derived from a statistical model developed to estimate the percentage of abstainers, lower risk (as a percentage of drinkers), increasing risk (as a percentage of drinkers) and higher risk drinkers (as a percentage of drinkers) in local authority populations. The Local Alcohol Profiles for England 2012 refresh for this indicator (and subsequent refreshes of data) was generated using an enhanced methodology (see metadata for details) and care should be taken when comparing these with previous estimates. Please see this publication for further information: www.lape.org.uk/downloads/alcoholestimates2011.pdf

Indicator details: binge drinking by adults (synthetic estimates)

ID	25.
Indicator name	Binge drinking synthetic estimate.
What is being measured	Prevalence of adult binge drinking.
Who does it measure	Persons, aged 16 years and over.
When does it measure	2007-2008.
Indicator definition	Prevalence of binge drinking, percentage of resident population, 2007-2008, persons, aged 16 years and over.
Timeliness	Originally produced by National Centre for Social Research. Updated by East Midlands Public Health Observatory (now the Knowledge and Intelligence Team [East Midlands]) March 2011. Updated on an ad-hoc basis.
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) The data download also provides data for government office regions.
Numerator definition	England and former government office regions: Proportion of adult men who drank eight or more units of alcohol on the heaviest drinking day in the previous seven days at time of survey and adult women who drank six or more units of alcohol on the heaviest drinking day in the previous seven days at time of survey, 2007-2008. Local authority: Model estimates by East Midlands Public Health Observatory (now the Knowledge and Intelligence Team [East Midlands]) using data from a number of sources including Health Survey for England 2007-2008, census 2001.
Numerator source	England and former government office regions: Health Survey for England, commissioned by the Department of Health and carried out by the Joint Health Survey Unit of Social and Community Planning Research and of the Department of Epidemiology and Public Health

	at University College, London. Local authority: East Midlands Public Health Observatory (now the Knowledge and Intelligence Team [East Midlands]).
Denominator definition	England and former government office regions: Total number of respondents (with valid measurements on drinking habits in the last week) aged 16 and over in the Health Survey for England 2007-2008. Local authority: Not applicable.
Denominator source	England and former government office regions: Health Survey for England, commissioned by the Department of Health/Information Centre, and carried out by the Joint Health Surveys Unit of National Centre for Social Research, the Department of Epidemiology and Public Health at the Royal Free and University College Medical School, London. Local authority: Not applicable.
Confidence interval methodology	The methodology for the Middle Super Output Area level estimate confidence intervals is available at www.apho.org.uk/resource/item.aspx?RID=96790 The confidence intervals for the aggregated estimates have been calculated using an approximate method, details available at www.apho.org.uk/resource/item.aspx?RID=103520
Caveats	These estimates include data from 2007 and 2008 only and cannot be compared with earlier years' data due to changes in the way alcohol units are calculated. Health Survey for England data are based on observed self-reported drinking behaviour. Self-reported consumption may be prone to respondent bias. Health Survey for England under-samples younger people, people in employment, ethnic minorities, women and those who are healthier but exhibit less healthy behaviour. England and former government office regions: These data have not been age-standardised and, therefore, variation between area values may be a result of differences in population structure. Local authority: These are modelled estimates based on national survey data. The model is non-aetiological (not based on known casual factors). The estimates do not take into account additional local factors that

	may impact on the true prevalence of binge drinking in an area and may not match with local lifestyle survey results or modelled estimates, which use known risk factors such as socio-economic status, age, sex and ethnicity. These estimates are modelled and the model used is not intended to be explanatory. They should, therefore, be used and interpreted with caution (see above) and not used to measure performance or change over time. The use of statistical models for prediction involves making assumptions about relationships in the data. The suitability of the chosen models for the given data and the validity of the model in describing real world dynamics have a bearing on the nature and magnitude of the errors introduced. A key source of modelling error arises from omitting variables that would otherwise help improve the model predictions either by error or because there are no available or reliable data source for them. The model-based estimate generated for a particular area is the expected measure for that area based on its population characteristics - and is not an estimate of the actual prevalence. In statistical terms, the model-based estimate is actually a biased estimate of the true value for the area and, as such, should be treated with caution. As mentioned above, the model-based estimates are unable to take account of any additional local factors that may impact on the true prevalence rate. To interpret the estimates, National Centre for Social Research recommend that users adopt statements such as "*given the characteristics of the local population we would expect approximately x% of adults within Local Authority Y to indulge in binge drinking.*"

Method used to create this indicator	The Health Survey for England questions concerning alcohol consumption ask respondents to give the number of days they drank alcohol in the previous week. If this was greater than zero, information on the heaviest drinking day was collected on the types of alcoholic drink (e.g. beer, spirits, wine and so on) and amount to allow a calculation of units drunk. From these questions, an estimated weekly consumption expressed in terms of units of alcohol was derived. Respondents whose information on drinking was missing were excluded. England and former government office regions: the former government office region and England estimates are taken directly from the Health Survey for England reported results for 2007-2008. Local authority: The methodology for the Middle Super Output Area level estimates is available at www.apho.org.uk/resource/view.aspx?RID=96790 The estimates for local authorities, unitary authorities and counties are calculated by aggregating the estimates and populations for their constituent Middle Super Output Areas. The Middle Super Output Area populations were the average of the mid-year estimates for the relevant years available at September 2010.
Summary footnote	Synthetic estimate of the percentage of adults who consume at least twice the daily recommended amount of alcohol in a single drinking session (that is, eight or more units for men and six or more units for women). Estimates produced for the former Association of Public Health Observatories (2007-2008). Revised dataset published March 2011 and updated to Local Alcohol Profiles for England resources in April 2012. Please see Public Health Observatories datasets for further information: www.apho.org.uk/resource/view.aspx?RID=91736

6.5 The alcohol economy

26. Employees in bars – percentage of all employees

The proportion of employees working in bars has been calculated for each area using data from the Business Register and Employment Survey carried out on behalf of the Office for National Statistics. See section 2.7 for further details on this indicator.

Indicator details: employees in bars

ID	26.
Indicator name	Employees in bars - percentage of all employees.
What is being measured	The number of employees employed in bars as a percentage of all employees.
Who does it measure	Persons employed in bars.
When does it measure	Single year: September 2012
Indicator definition	The number of employees employed in bars as a percentage of all employees.
Timeliness	Produced annually by the Knowledge and Intelligence Team (North West). The Office for National Statistics (ONS) publishes the Business Register and Employment Survey (BRES) data of the following year (2012 data published in 2013).
Geographical coverage	England, 2009 local authority districts (non-metropolitan districts, unitary authorities, London boroughs and metropolitan districts) and PHE centres. The data download also provides data for former government office regions.
Numerator definition	Employment (employees and working proprietors) in the beverage serving activities industry sector (Standard Industrial Classification 2007: 563 - beverage serving activities). See denominator definition for definitions of employee and working proprietors (i.e. owners) used here.
Numerator source	Office for National Statistics (ONS), Business Register and Employment Survey (BRES) data via Nomis: www.nomisweb.co.uk (Please note that special authorisation under licence is required to access the raw data for low level geographies).
Denominator definition	An employee is anyone aged 16 years or over that an organisation directly pays from its payroll(s), in return for carrying out a full-time or part-time job or being on a training scheme. It excludes voluntary workers, self-employed, working owners who are not paid via the pay-as-you-earn tax. Employment includes both employees and the working proprietors (i.e. owners).

	Working proprietors are sole traders, sole proprietors, partners and directors. This does not apply to registered charities.
Denominator source	Office for National Statistics (ONS), Business Register and Employment Survey (BRES) data via Nomis: www.nomisweb.co.uk (Please note that special authorisation under licence is required to access the raw data for low level geographies).
Confidence interval methodology	The Wilson Score method was used to generate 95% confidence intervals, as detailed in APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals.[5] The formula numbers below correspond to those in the briefing available from: www.apho.org.uk/apho/techbrief.htm An accompanying Excel spreadsheet, replicating all formulae, is also available from the link above. The proportion p is given by: $p = \frac{O}{n}$ where: *O* is the numerator observed number of individuals in the sample/population having the specified characteristics; *n* is the denominator total number of individuals in the sample/population. Using the Wilson Score method, the 100(1–α)% confidence limits for the proportion *p* are given by: $$p_{lower} = \frac{\left(2O + z^2 - z\sqrt{z^2 + 4Oq}\right)}{2\left(n + z^2\right)}$$ $$p_{upper} = \frac{\left(2O + z^2 + z\sqrt{z^2 + 4Oq}\right)}{2\left(n + z^2\right)}$$ where: *q* is 1–p *z* is the 100(1–α/2)th percentile value from the standard normal distribution. For example, for a 95% confidence interval, α = 0.05 and *z* = 1.96 (i.e. the 97.5th percentile value from the standard normal distribution).
Caveats	BRES is based on a sample survey so estimates are subject to sampling errors which need to be taken into account when

	interpreting the data. For further details see: www.ons.gov.uk/ons/guide-method/method-quality/specific/labour-market/business-register-and-employment-survey--bres-/quality-and-methods/index.html
Method used to create this indicator	Percentages were calculated using the following formula: $(a/b) \times 100$ where: *a* = employment in bars *b* = all in employment
Summary footnote	The number of those in employment in the beverage serving activities industry sector (Standard Industrial Classification 2007: 563), as a percentage of all in employment. Business Register and Employment Survey September 2012, Office for National Statistics from Nomis: www.nomisweb.co.uk

7.0 References

1. Jones L and Bellis MA (2014). *Updating England-specific alcohol-attributable fractions.* Liverpool: Centre for Public Health, Liverpool John Moores University.

2. Jones L, Bellis MA, Dedman D, Sumnall H and Tocque K (2008). *Alcohol-attributable fractions for England: Alcohol-attributable mortality and hospital admissions.* Liverpool: Centre for Public Health, Liverpool John Moores University.

3. Public Health England Transition Team (2012). Structure of Public Health England. Factsheet [Online]. Available from: *http://webarchive.nationalarchives.gov.uk/20130805112926/http://healthandcare.dh.gov.uk/phe-structure* [Accessed 11 November 2013].

4. Eurostat (2013). *Revision of the European standard population. Report of Eurostat's task force.* Luxembourg: Publications Office for the European Union.

5. Eayres D (2008). *APHO Technical Briefing 3: Commonly Used Public Health Statistics and their Confidence Intervals.* York: Association of Public Health Observatories.

Appendix 1. Updated alcohol-attributable fractions used to calculate alcohol-specific and alcohol-related hospital admission and mortality

Condition	ICD10 code(s)	0-15		16-24		25-34		35-44		45-54		55-64		65-74		75+	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Wholly attributable conditions																	
Alcohol-induced pseudo-Cushing's syndrome	E24.4	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Mental and behavioural disorders due to use of alcohol	F10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Degeneration of nervous system due to alcohol	G31.2	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Alcoholic polyneuropathy	G62.1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Alcoholic myopathy	G72.1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Alcoholic cardiomyopathy	I42.6	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Alcoholic gastritis	K29.2	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Alcoholic liver disease	K70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Alcohol-induced acute pancreatitis	K85.2	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Alcohol-induced chronic pancreatitis	K86.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fetal alcohol syndrome (dysmorphic)	Q86.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Excess alcohol blood levels	R78.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ethanol poisoning	T51.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Methanol poisoning	T51.1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Toxic effect of alcohol, unspecified	T51.9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Accidental poisoning by and exposure to alcohol	X45	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Intentional self-poisoning by and exposure to alcohol	X65	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Poisoning by and exposure to alcohol, undetermined intent	Y15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Evidence of alcohol involvement determined by blood alcohol level	Y90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Evidence of alcohol involvement determined by level of intoxication	Y91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Partially attributable conditions - Chronic conditions																	
Infectious and parasitic diseases																	
Tuberculosis	A15-A19	0.00	0.00	0.30	0.19	0.33	0.17	0.34	0.21	0.35	0.22	0.35	0.20	0.31	0.14	0.22	0.11

Condition	ICD10 code(s)	0-15		16-24		25-34		35-44		45-54		55-64		65-74		75+	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Malignant neoplasm of:																	
Lip, oral cavity and pharynx	C00-C14	0.00	0.00	0.53	0.38	0.44	0.35	0.44	0.42	0.46	0.43	0.47	0.40	0.40	0.31	0.29	0.24
Oesophagus	C15	0.00	0.00	0.58	0.49	0.61	0.48	0.61	0.53	0.63	0.53	0.63	0.51	0.60	0.45	0.52	0.38
Colorectal	C18-C20, C21	0.00	0.00	0.16	0.11	0.18	0.12	0.18	0.13	0.19	0.14	0.19	0.13	0.17	0.11	0.13	0.11
Liver and intrahepatic bile ducts	C22	0.00	0.00	0.15	0.11	0.17	0.11	0.17	0.12	0.18	0.13	0.18	0.12	0.16	0.10	0.12	0.11
Larynx	C32	0.00	0.00	0.35	0.25	0.39	0.23	0.39	0.28	0.41	0.29	0.41	0.27	0.36	0.21	0.28	0.17
Breast	C50	0.00	0.00	0.00	0.12	0.00	0.13	0.00	0.14	0.00	0.15	0.00	0.14	0.00	0.12	0.00	0.11
Diabetes mellitus																	
Diabetes mellitus (type II)	E11	0.00	0.00	-0.04	-0.20	-0.04	-0.21	-0.04	-0.22	-0.04	-0.22	-0.03	-0.22	-0.04	-0.20	-0.03	-0.15
Diseases of the nervous system																	
Epilepsy and Status epilepticus	G40-G41	0.00	0.00	0.32	0.22	0.35	0.20	0.35	0.24	0.37	0.25	0.37	0.23	0.33	0.18	0.24	0.15
Cardiovascular disease																	
Hypertensive diseases	I10-I15	0.00	0.00	0.22	0.26	0.25	0.17	0.25	0.30	0.27	0.31	0.27	0.25	0.23	0.09	0.15	-0.06
Ischaemic heart disease	I20-I25	0.00	0.00	-0.10	-0.10	-0.10	-0.08	-0.10	-0.10	-0.10	-0.10	-0.10	-0.09	-0.11	-0.07	-0.10	-0.02
Cardiac arrhythmias	I47-I48	0.00	0.00	0.15	0.10	0.17	0.11	0.17	0.12	0.18	0.13	0.18	0.12	0.16	0.10	0.12	0.11
Haemorrhagic stroke - Mortality	I60-I62, I69.0-I69.2	0.00	0.00	0.18	0.25	0.20	0.22	0.20	0.27	0.21	0.28	0.22	0.26	0.19	0.19	0.15	0.13
Haemorrhagic stroke - Morbidity		0.00	0.00	0.20	-0.11	0.22	-0.14	0.23	-0.11	0.24	-0.10	0.24	-0.12	0.21	-0.16	0.17	-0.15
Ischaemic stroke - Mortality	I63-I66, I69.3-I69.4	0.00	0.00	0.01	-0.09	0.02	-0.14	0.02	-0.09	0.03	-0.08	0.04	-0.10	0.01	-0.16	0.00	-0.14
Ischaemic stroke - Morbidity		0.00	0.00	0.00	-0.06	0.01	-0.07	0.01	-0.06	0.02	-0.06	0.03	-0.07	0.00	-0.07	-0.01	-0.06
Oesophageal varices - Mortality	I85	0.00	0.00	0.70	0.64	0.73	0.62	0.74	0.68	0.76	0.69	0.76	0.66	0.70	0.58	0.55	0.57
Oesophageal varices - Morbidity		0.00	0.00	0.44	0.31	0.47	0.41	0.48	0.38	0.50	0.40	0.50	0.41	0.44	0.42	0.33	0.51
Respiratory infections																	
Pneumonia	J10.0, J11.0, J12-J15, J18	0.00	0.00	0.12	0.07	0.14	0.06	0.14	0.08	0.15	0.08	0.15	0.08	0.13	0.05	0.10	0.03
Digestive disease																	
Unspecified liver disease - Mortality	K73,	0.00	0.00	0.70	0.64	0.73	0.62	0.74	0.68	0.76	0.69	0.76	0.66	0.70	0.58	0.55	0.57

Condition	ICD10 code(s)	0-15		16-24		25-34		35-44		45-54		55-64		65-74		75+	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Unspecified liver disease - Morbidity	K74	0.00	0.00	0.44	0.31	0.47	0.41	0.48	0.38	0.50	0.40	0.50	0.41	0.44	0.42	0.33	0.51
Cholelithiasis (gall stones)	K80	0.00	0.00	-0.25	-0.17	-0.28	-0.17	-0.28	-0.19	-0.30	-0.19	-0.30	-0.18	-0.27	-0.16	-0.21	-0.14
Acute and chronic pancreatitis	K85, K86.1 (excl. K85.2)	0.00	0.00	0.35	0.17	0.39	0.14	0.40	0.20	0.43	0.21	0.43	0.18	0.35	0.12	0.20	0.10
Pregnancy and childbirth																	
Spontaneous abortion	O03	0.00	0.00	0.00	0.08	0.00	0.08	0.00	0.11	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
Low birth weight	P05-P07	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Partially attributable conditions - Acute conditions																	
Unintentional injuries																	
Road/pedestrian traffic accidents - Mortality	§	0.00	0.00	0.42	0.25	0.46	0.22	0.39	0.22	0.41	0.23	0.28	0.14	0.16	0.07	0.06	0.03
Road/pedestrian traffic accidents - Morbidity		0.00	0.00	0.28	0.17	0.31	0.15	0.26	0.15	0.27	0.15	0.19	0.09	0.11	0.05	0.04	0.02
Poisoning - Mortality	X40–X49 (excl. X45)	0.00	0.00	0.32	0.18	0.37	0.17	0.37	0.20	0.40	0.19	0.38	0.14	0.26	0.08	0.12	0.04
Poisoning - Morbidity		0.00	0.00	0.14	0.08	0.17	0.08	0.16	0.09	0.18	0.08	0.17	0.06	0.12	0.04	0.05	0.02
Fall injuries - Mortality	W00-W19	0.00	0.00	0.32	0.18	0.37	0.17	0.37	0.20	0.40	0.19	0.38	0.14	0.26	0.08	0.12	0.04
Fall injuries - Morbidity		0.00	0.00	0.14	0.08	0.17	0.08	0.16	0.09	0.18	0.08	0.17	0.06	0.12	0.04	0.05	0.02
Fire injuries - Mortality	X00-X09	0.00	0.00	0.32	0.18	0.37	0.17	0.37	0.20	0.40	0.19	0.38	0.14	0.26	0.08	0.12	0.04
Fire injuries - Morbidity		0.00	0.00	0.14	0.08	0.17	0.08	0.16	0.09	0.18	0.08	0.17	0.06	0.12	0.04	0.05	0.02
Drowning - Mortality	W65-W74	0.00	0.00	0.32	0.18	0.37	0.17	0.37	0.20	0.40	0.19	0.38	0.14	0.26	0.08	0.12	0.04
Drowning - Morbidity		0.00	0.00	0.14	0.08	0.17	0.08	0.16	0.09	0.18	0.08	0.17	0.06	0.12	0.04	0.05	0.02
Other unintentional injuries - Mortality	Rest of 'V' series §§	0.00	0.00	0.32	0.18	0.37	0.17	0.37	0.20	0.40	0.19	0.38	0.14	0.26	0.08	0.12	0.04
Other unintentional injuries - Morbidity		0.00	0.00	0.14	0.08	0.17	0.08	0.16	0.09	0.18	0.08	0.17	0.06	0.12	0.04	0.05	0.02
Intentional injuries																	
Intentional self-harm - Mortality	X60-X84, Y87.0 (excl. X65)	0.00	0.00	0.32	0.18	0.37	0.17	0.37	0.20	0.40	0.19	0.38	0.14	0.26	0.08	0.12	0.04
Intentional self-harm - Morbidity		0.00	0.00	0.14	0.08	0.17	0.08	0.16	0.09	0.18	0.08	0.17	0.06	0.12	0.04	0.05	0.02

Condition	ICD10 code(s)	0-15		16-24		25-34		35-44		45-54		55-64		65-74		75+	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Event of undetermined intent - Mortality	Y10-Y34, Y87.2 (excl. Y15)	0.00	0.00	0.32	0.18	0.37	0.17	0.37	0.20	0.40	0.19	0.38	0.14	0.26	0.08	0.12	0.04
Event of undetermined intent - Morbidity		0.00	0.00	0.14	0.08	0.17	0.08	0.16	0.09	0.18	0.08	0.17	0.06	0.12	0.04	0.05	0.02
Assault - Mortality	X85-Y09, Y87.1	0.00	0.00	0.32	0.18	0.37	0.17	0.37	0.20	0.40	0.19	0.38	0.14	0.26	0.08	0.12	0.04
Assault - Morbidity		0.00	0.00	0.14	0.08	0.17	0.08	0.16	0.09	0.18	0.08	0.17	0.06	0.12	0.04	0.05	0.02

§ = V021-V029, V031-V039, V041-V049, V092, V093, V123-V129, V133-V139, V143-V149, V194-V196, V203-V209, V213-V219, V223-V229, V233-V239, V243-V249, V253-V259, V263-V269, V273-V279, V283-V289, V294-V299, V304-V309, V314-V319, V324-V329, V334-V339, V344-V349, V354-V359, V364-V369, V374-V379, V384-V389, V394-V399, V404-V409, V414-V419, V424-V429, V434-V439, V444-V449, V454-V459, V464-V469, V474-V479, V484-V489, V494-V499, V504-V509, V514-V519, V524-V529, V534-V539, V544-V549, V554-V559, V564-V569, V574-V579, V584-V589, V594-V599, V604-V609, V614-V619, V624-V629, V634-V639, V644-V649, V654-V659, V664-V669, V674-V679, V684-V689, V694-V699, V704-V709, V714-V719, V724-V729, V734-V739, V744-V749, V754-V759, V764-V769, V774-V779, V784-V789, V794-V799, V803-V805, V811, V821, V830-V833, V840-V843, V850-V853, V860-V863, V870-V878, V892. §§ = V01, V090, V091, V099, V100-V109, V110-V119, V120-122, V130-132, V140-V142, V150-V159, V160-V169, V170-V179, V180-V189, V191-V193, V20-V28: 0.1–0.2; V290-V293, V30-V38: 0.1–0.2; V390-V393, V40-V48: 0.1–0.2; V490-V493, V50-V58: 0.1–0.2; V590-V593, V60-V68: 0.1–0.2; V690-V693, V70-V78: 0.1–0.2; V790-V793, V800, V801, V806–V809, V810, V812–V819, V820, V822–V829, V834–V839, V844–V849, V854–V859, V864–V869, V879, V88, V890, V891, V893–V899, V90-V94, V95-V97, V98-V99, W20-W52, W75-W84, W85–W99, X10-X19, X20-X29, X30-X33, X50-X57, X58, X59, Y40-Y84 Y85, Y86, Y88, Y89